



# BIO PROCESSING CATALOG





# The GVS Group

In over 45 years of history, GVS has evolved from a supplier of components for the healthcare sector to a global group that produces highly technological diversified filtration solutions.

## Wide range of products and custom design expertise

GVS produces a wide range of filter materials, filters and off-the-shelf components in all its divisions, enabling its customers to reduce the design time for new product launches. All the GVS divisions work in highly regulated environments and the Group therefore operates with extremely high-quality standards. Thanks to its research and development centres located all over the world, GVS is also able to offer an extremely efficient and personalized service to meet its customers' needs: from product conception and design to testing and mass production.

## Dynamic and flexible structure

GVS has developed a streamlined, dynamic and technologically advanced structure that has made it possible to achieve constant and balanced growth. The Group currently employs a total of 4869 people who work in automated assembly departments, in lines for the production and processing of filter membranes and in class 10,000 and 100,000 cleanrooms.

## Global growth

The GVS Group has always paid great attention to research, development and innovation of its products and processes and has shown a strong trend towards development in global markets since its foundation.

In addition to the corporate headquarters in Bologna, GVS currently has 19 plants in Italy, United Kingdom, Brazil, United States, China, Mexico, Romania e Puerto Rico, and 29 commercial offices located all over the world. GVS has always adopted a "glocal" approach: it operates locally in contact with its customers, but relies on the strength of a global network.

For more information, visit [www.gvs.com](http://www.gvs.com)



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# CARTFLOW



# CFP series PES membrane

# CFP series PES membrane

## Eco Grade PES Pleated Filter Cartridges

CFP series - PES Eco Grade Pleated Filter Cartridges use the hydrophilic polyethersulfone (PES) membrane, which is with extreme low extractables and non-fiber releasing.

The CFP series - PES Eco Grade Pleated Filter Cartridges have a broad chemical compatibility and better stability. This series is suitable for the filtration of bioburden reduction



### Features

- High flow rate
- High-durability PES membrane and other PP assemblies
- Broad chemical compactivity (pH 1-14)
- Special hydrophilic materials

### Applications

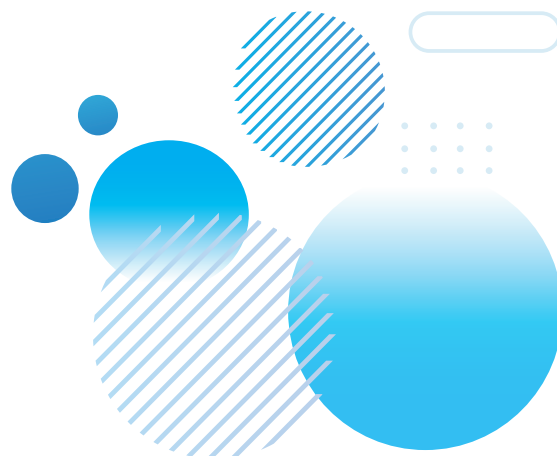
- large volume parenterals (LVP)
- Biological reagent filtration
- Ophthalmics filtration
- Aseptic filtration for detergent and disinfectant

### Guarantees

- All filter cartridges are manufactured in 10,000-degree clean room
- Manufactured according to ISO9001:2015 certified quality management system
- Gross integrity

### Dimension

OD	69 mm (2.72")
Length	5", 10", 20", 30", 40"

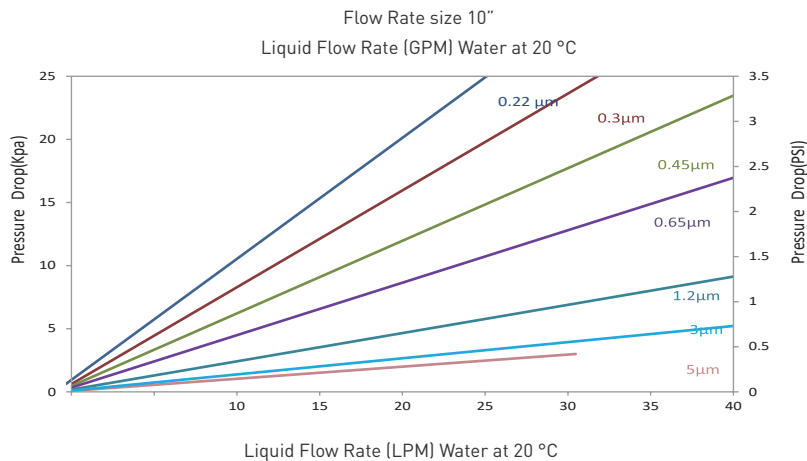


## Material of Constructions

Media	Polyethersulfone (PES)
Support/Diversion	Polypropylene
Core/Cage/End Cap	Polypropylene

## Performance

Max Operating Temperature	80 °C
Max. Operating DP	4.0 bar @20 °C 2.4 bar @80 °C (Forward)
SIP	25 °C / 30 min



## Quality

- Filter Cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified Quality Management System

## Food Contact Compliance

- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations 21 CFR.
- Materials used to produce filter media and hardware meet the specifications for biological safety per USP Calss VI-121C for plastics.
- Filter cartridgespassed European Commission Directives (EU10/2011)
- Halal Certified

Eg.=> CFPPS0022Z050AD0PSS0

ORDERING INFORMATION										
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFP = Pleated Cartridge	PS = PES	0022 = 0.22µm	Z = Eco Gr	05 = 5"	0A = OD:69 mm	D0 = D0E	P = Polypro	S = Silicone	S= Standard  Y = SS reinforcement (Endcap D0, E2, K1, K2, excluded)  F = E-FKM  P = PSU reinforcement (Endcap G1, G2, only)	0 = Rev.0
		0045 = 0.45µm		10 = 10"		E2 = 213/Flat	S = SS Steel	E = EPDM		
		0065 = 0.65µm		20 = 20"		H1 = 222/Fin		V = Viton		
		0120 = 1.2µm		30 = 30"		H2 = 222/Flat				
		0300 = 3µm		40 = 40"		H5 = 222/Spear Fin				
		0500 = 5µm				K1 = 222 Ext/Fin				
						K2 = 222 Ext/Flat				
						G1 = 226/Fin				
						G2 = 226/Flat				
						G5 = 226/Spear Fin				

# CFP series PES membrane

## High Asymmetric PES Pleated Filter Cartridges

CFP series High Asymmetric Polyethersulfone (PES) pleated filter cartridges are made of hydrophilic high asymmetric polyethersulfone membrane, can provide exceptionally high flow rate and long service life for processing large fluid volumes. It has excellent retention of microorganisms for superior protection of final filters. This characteristic especially suits for Food and Beverage filtration.



## Features

- Broad pH compatibility allows the use of filters in a wide range of fluids
- Bioburden reduction efficiency for process with variable bioburden applications with high flow requirements.
- 100% integrity tested during manufacture.
- Low extractables.

## Applications

- Food and beverage filtration
- Reduce biological load
- High flow process requirements
- Protection final filters or downstream equipment and systems such as tangential chromatographic

Integrity Test		
Micron	Bubble Point $\geq$ (Water)	Diffusion Flow $\leq$ (10"Ø69mm)
0.22 $\mu$ m	3.2 bar	35ml / min @ 2.76 bar
0.45 $\mu$ m	2.1 bar	35ml / min @ 1.70 bar
0.65 $\mu$ m	1.32 bar	24ml / min @ 1.1 bar

## Dimension

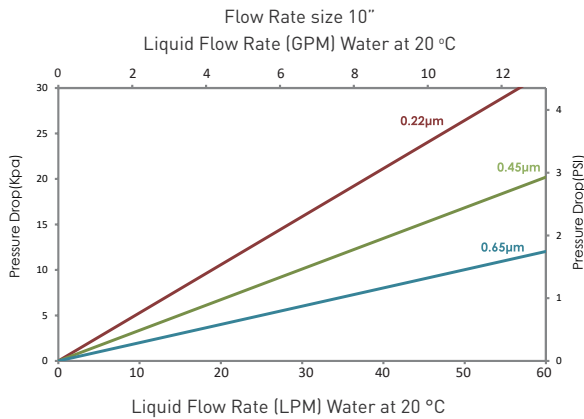
Diameter	69 mm
Length	5", 10", 20", 30", 40"

## Quality

- Validated with B. diminuta (ATCC 191463) at 107/CM2 (0.22  $\mu$ m).
- Each membrane filter element has been individually tested for integrity.
- Individual element is tracked by serial number.
- Manufactured according to ISO 9001:2015 certified quality management system.
- Meets USP Biological Reactivity Test requirements of the current USP <88> for plastic class VI-121 °C.

## Effluent quality

- Non-fiber releasing
- Meets TOC and water conductivity per USP Purified Water, pH per USP Sterile Purified Water.



## Material of Constructions

Media	PES
Support	PP
Cage/Core/End	PP
Connection Adaptor	
SS Insert, PSU Insert	
O-Ring Silicone, EPDM , Viton®	

## Performance

### Operating Conditions

Max Operating Temperature	80 °C
Max. Operating DP	4 bar @ 21°C, 2.4 bar @ 80 °C

### Sterilization

Autoclave Sterilization	121 °C, 60 Min
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### Filtration Area

Ø 69mm 0.65 m<sup>2</sup> / 10" Filter cartridges

### Extractables

10" Filter Cartridges	< 20mg
-----------------------	--------

**Eg.=> CFPPS0010S050AD0PSS0**

ORDERING INFORMATION												
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision		
CFP = Pleated Cartridge Filter	PS = PES	0010 = 0.1µm	G = Gen Purpose	05 = 5"	0A = OD:69 mm	D0 = DOE	P = Polypropylene	S = Silicone	S= Standard	0 = Rev.0		
		0022 = 0.22µm		10 = 10"		E2 = 213/Flat		S = SS Steel			E = EPDM	
		0045 = 0.45µm		20 = 20"		H1 = 222/Fin					B = NBR	Y = SS reinforcement
		0065 = 0.65µm		30 = 30"		H2 = 222/Flat					V = Viton	(Endcap D0, E2, K1, K2, excluded)
				40 = 40"		H5 = 222/Spear Fin					F = E-FKM	
						K1 = 222 Ext/Fin						P = PSU reinforcement (Endcap G1, G2, only)
				K2 = 222 Ext/Flat								
				G1 = 226/Fin								
				G2 = 226/Flat								
	G5 = 226/Spear Fin											

# CFP series PES membrane

## Asymmetric PES Pleated Filter Cartridges

The CFP series Asymmetric Polyethersulfone (PES) Pleated Filter Cartridges are designed to provide greater bacteria and particle removal at high flow rates and low pressure drops in a wide range of biological fluids. It offers the greatest assurance of filtration performance, stability, and service life. All components of the filter cartridge comply with FDA regulations for food contact use.



### Features

- Durable PES and PP components
- Highly porous asymmetric membrane
- Excellent chemical compatibility
- Low extractables
- 100% integrity tested during manufacture

### Applications

- Large infusion (LVP), small injection (SVP), eye drops sterilization filtration
- Sterilization filtration of biological product
- Sterilization filtration of antibiotic aqueous solution
- Cleaning fluid and disinfectant sterilizing filtration

### Dimension

Diameter	69 mm
Length	5", 10", 20", 30", 40"

### Material of Constructions

Media	PES
Support	PP
Cage/Core/End	PP
Connection Adaptor	SS Insert, PSU Insert
O-Ring	Silicone, EPDM, Viton®

### Quality

- Validated with B. diminuta (ATCC 191463) at  $10^7/\text{CM}^2$  (0.22  $\mu\text{m}$ ).
- Each membrane filter element has been individually tested for integrity.
- Individual element is tracked by serial number.
- Manufactured according to ISO 9001:2015 certified quality management system.
- Meets USP Biological Reactivity Test requirements of the current USP <88> for plastic class VI-121°C.

## Performance

### Operating Conditions

Max Operating Temperature	80 °C
Max. Operating DP	4 bar @ 21 °C , 2.4 bar @ 80 °C

### Sterilization

Autoclave Sterilization	121°C , 60 Min
SIP	135°C , 30 Min , 20 cycles

### Filtration Area

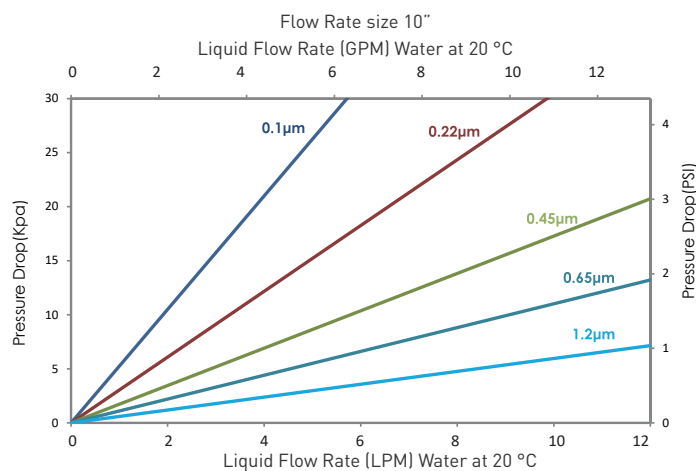
Ø 69mm	0.65 m <sup>2</sup> / 10" Filter cartridges
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### Extractables

10" Filter Cartridges	< 20 mg
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## Effluent quality

- Non-fiber releasing
- Non-pyrogenic per USP Bacterial Endotoxins (<0.25 EU/mL)
- Meets TOC and water conductivity per USP Purified Water, pH per USP Sterile Purified Water.



Integrity Test		
Micron	Bubble Point ≥ (Water)	Diffusion Flow ≤ (10" Ø69 mm)
0.1 µm	4.8 bar	25 ml / min @ 4.475 bar
0.22 µm	3.2 bar	25 ml / min @ 2.76 bar
0.45 µm	2.1 bar	25 ml / min @ 1.70 bar
0.65 µm	1.32 bar	12 ml / min @ 1.1 bar

Eg.=> CFPPS0010S050AD0PSS0

ORDERING INFORMATION										
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFP = Pleated Cartridge Filter	PS = PES	0010 = 0.1µm	S = Ster Grade	05 = 5"	0A = OD:69 mm	D0 = DOE	P = Polypropylene S = SS Steel	S = Silicone E = EPDM B = NBR V = Viton F = E-FKM	S = Standard Y = SS reinforcement (Endcap D0, E2, K1, K2, excluded) P = PSU reinforcement (Endcap G1, G2, only)	0 = Rev.0
		0004 = 0.04µm		10 = 10"		E2 = 213/Flat				
		0022 = 0.22µm		20 = 20"		H1 = 222/Fin				
		0045 = 0.45µm		30 = 30"		H2 = 222/Flat				
		0065 = 0.65µm		40 = 40"		H5 = 222/Spear Fin				
		0120 = 1.2µm				K1 = 222 Ext/Fin K2 = 222 Ext/Flat G1 = 226/Fin G2 = 226/Flat G5 = 226/Spear Fin				

# CFP series PES membrane

## Double Layer Asymmetric PES Pleated Filter Cartridges

CFP series Double Layer Asymmetric PES Pleated Filter Cartridges is constructed of highly asymmetric polyethersulfone membrane from Germany and imported support layer. Unique double layer hydrophilic polyethersulfone makes it have excellent filtration performance and reliable bacteria intercepting ability. It is especially used in pharmaceutical industry with stringent requirement. All components of filter cartridge comply with FDA regulations. This filter can withstand repeated steam sterilization.

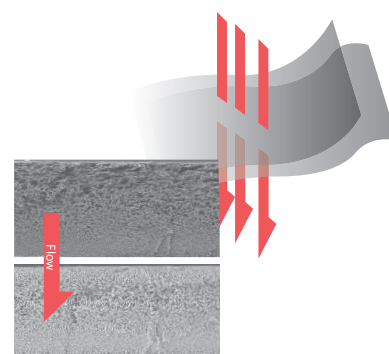
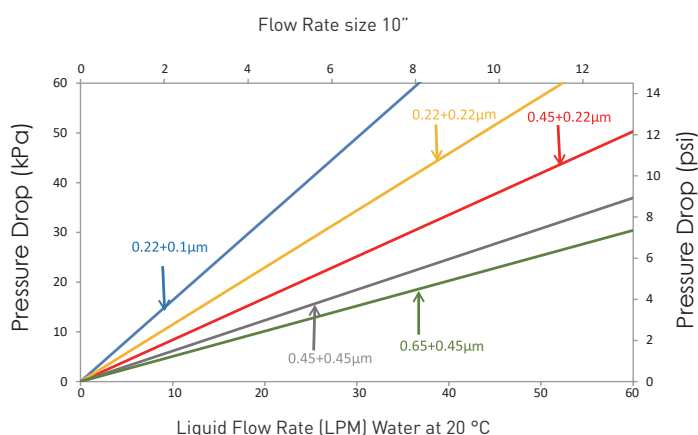


### Features

- Unique double layer hydrophilic polyethersulfone with double security makes it have reliable bacteria-intercepting ability, increasing filtration safety factor by more than 10 times.
- Large effective filtration area makes the filter longer service life and lower cost.
- Broad chemical compatibility (PH1-14), it is suitable for various pharmaceutical filtration.
- Structure Stabilization, it can withstand sterilization cycle with 50 times
- 100% integrity test ensures absolute sterilization
- Low protein adsorption
- ISO9001:2015 certified Quality Management System

### Quality

- Validated with B. diminuta (ATCC 191463) at 107/CM2 (0.22  $\mu$ m).
- Each membrane filter element has been individually tested for integrity.
- Individual element is tracked by serial number.
- Manufactured according to ISO 9001:2015 certified quality management system.
- Meets USP Biological Reactivity Test requirements of the current USP <88> for plastic class VI-121  $^{\circ}$ C



## Applications

Pharma - Particles filtration, bacterium filtration, API (Active Pharmaceutical Ingredient) filtration, Food and Beverage - Water filtration, Wine and Sparkling Wine filtration, Spirits filtration.

## Material of Constructions

Media	PES
Support	PP
Cage/core/end cap	PP
Sealing	Silicone, EPDM, NBR, Viton, Teflon, E-FKM

## Dimension

Outer Diameter	69 mm
Length	5", 10", 20", 30", 40"

## Performance

### Operating Conditions

Max Operating Temperature	80 °C
Max. Operating DP	4.0 bar @ 20 °C 2.4 bar @ 80 °C

### Sterilization

Autoclave Sterilization	121 °C , 60 min
SIP	125 °C , 30 min

### Filtration Area

Ø 69mm	0.65 m <sup>2</sup> / 10"
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### Extractables

10" Filter Cartridges	< 20 mg
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## Effluent quality

- Non-fiber releasing
- Non-pyrogenic per USP Bacterial Endotoxins (<0.25EV/mL)
- Meets TOC and water conductivity per USP Purified Water, pH per USP Sterile Purified Water.



Integrity Test		
Membrane por size	Bubble Point ≥ (Water)	Diffusion Flow ≤ (10" Ø69mm)
2201 = 0.22/0.1µm	4.8 bar	25ml/min @ 4.475 bar
2222 = 0.22/0.22µm	3.2 bar	20ml/min @ 2.76 bar
0422 = 0.45/0.22µm	3.2 bar	25ml/min @ 2.76 bar
0404 = 0.45/0.45µm	2.1 bar	20ml/min @ 1.70 bar
0604 = 0.65/0.45µm	2.1 bar	25ml/min @ 1.70 bar

Eg. => CFPPS2201P050AD0PSS0

ORDERING INFORMATION										
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFP = Pleated Cartridge Filter	PS = PES	2201 = .22/0.1µm	P = Premier	05 = 5"	0A = 0D:69 mm	D0 = DOE	P = Polypropylene S = SS Steel	S = Silicone E = EPDM B = NBR V = Viton F = E-FKM	S = Standard Y = SS reinforcement (Endcap D0, E2, K1, K2, excluded) P = PSU reinforcement (Endcap G1, G2, only)	0 = Rev.0
		2222 = .22/.22µm		10 = 10"		E2 = 213/Flat				
		0422 = .45/.22µm		20 = 20"		H1 = 222/Fin				
		0404 = .45/.45µm		30 = 30"		H2 = 222/Flat				
		0604 = .65/.45µm		40 = 40"		H5 = 222/Spear Fin				
						K1 = 222 Ext/Fin K2 = 222 Ext/Flat G1 = 226/Fin G2 = 226/Flat G5 = 226/Spear Fin				

# CFP series PSU membrane

# CFP series PSU membrane

## General Applications PSU Pleated Filter Cartridges

CFP series General Applications Pleated PSU Filter Cartridges is constructed of highly asymmetric hydrophilic polysulfone membrane and polypropylene components. The unique PSU membrane delivers a high flow rate, long life time, and excellent particle removal efficiency. All the cartridges are made in a controlled clean room environment. The cartridges are ideally suitable for filtration of water-based fluids.



## Features

- Highly asymmetric polysulfone membrane provides excellent dirt holding capacity and flow characteristics
- Hydrophilic polysulfone membrane eliminates the need for prewetting and flushing
- Asymmetric membrane structure provides high flow rates with lower differential pressure and a longer life time
- Widely compatible with cleaning applications in many processes such as developing, etching, and stripping
- Manufactured in controlled clean room environment

## Applications

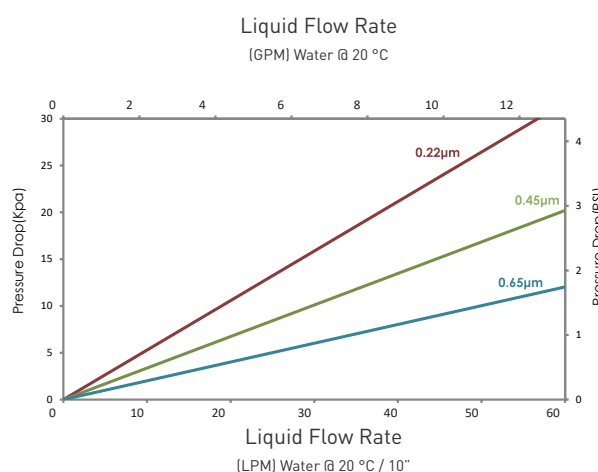
- General-Use water Filtration
- Deionized water systems
- Liquid clarification
- Chemical filtration
- Ultra-Pure water systems

## Dimension

Diameter	69 mm
Length	5", 10", 20", 30", 40"

## Food Contact Compliance

- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations 21CFR.
- Materials used to produce filter media and hardware meet the specifications for biological safety per USP Class VI-121C for plastics.
- Filter cartridges passed European Commission Directives (EU10/2011)
- Halal Certified



## Material of Constructions

- Media
- Support
- Cage/Core/End
- Sealing

Highly Asymmetric Hydrophilic PSU Membrane  
Polypropylene (PP)  
Polypropylene (PP)  
EPDM, Viton®, E-FKM

## Performance

### Operating Conditions

Max. Operating Temperature

80 °C

Max. Operating DP

4 bar @ 21 °C, 2.4 bar @ 80 °C

## Quality

- Filter Cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified Quality Management System
- 100% integrity test

Eg.=> CFPSU0003G050ADOPSS0

ORDERING INFORMATION											
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision	
CFP = Pleated Cartridge Filter	SU = Polysulfone	0003 = 0.03µm	G = Gen Purpose	05 = 5"	0A = OD:69 mm	D0 = DOE	P = Polypro	S = Silicone	S = Standard	0 = Rev.0	
		0005 = 0.05µm		10 = 10"		E2 = 213/Flat	U = SUS Steel	E = EPDM			
		0010 = 0.1µm		20 = 20"		H1 = 222/Fin		B = NBR	Y = SS reinforcement (Endcap D0, E2, K1, K2, excluded)		
		0020 = 0.20µm		30 = 30"		H2 = 222/Flat		V = Viton			
		0045 = 0.45µm		40 = 40"		H5 = 222/Spear Fin		F = E-FKM			
		0120 = 1.2µm				K1 = 222 Ext/Fin			P = PSU reinforcement (Endcap G1, G2, only)		
						K2 = 222 Ext/Flat					
						G1 = 226/Fin					
						G2 = 226/Flat					

# CFP series PP media

# CFP series PP media

## General Applications PP Pleated Filter Cartridge

CFP series General Applications PP Pleated Filter Cartridge are all-polypropylene filter cartridges in economically efficient design, suitable for a wide range of process applications. The pleated polypropylene filter material provides a large filtration surface area which allows for maximized flow rate in the system. PP Pleated Filter Cartridges are available in nominal retention ratings from 0.1 to 50 micron.



### Features

- Nominal rated structure, particle removal rating from 0.1 to 50 Micron
- 100% polypropylene components provide broad chemical compatibility, suitable for use in a variety of fluids
- Various end cap configurations to fit into the most standard housings
- Meets FDA requirements for food contact and passes European Commission Directives (EU10/2011)

### Applications

- Food & Beverage
- Plating Chemicals
- RO Pre-Filtration
- Fine Chemicals
- Process Water
- Waste water

### Dimension

Diameter	69 mm
Length	5", 10", 20", 30", 40"

### Food Contact Compliance

- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations 21 CFR.
- Materials used to produce filter media and hardware meet the specifications for biological safety per USP Class VI-121 °C for plastics.
- Filter cartridges passed European Commission Directives (EU10/2011)
- Halal Certified



## Material of Constructions

- Media: PP
- Support: PP
- Cage / Core / End cap: PP
- Sealing: Silicone, EPDM, NBR, Viton®, Teflon®, E-FKM

## Operating Conditions

Max. Operating Temperature

80 °C

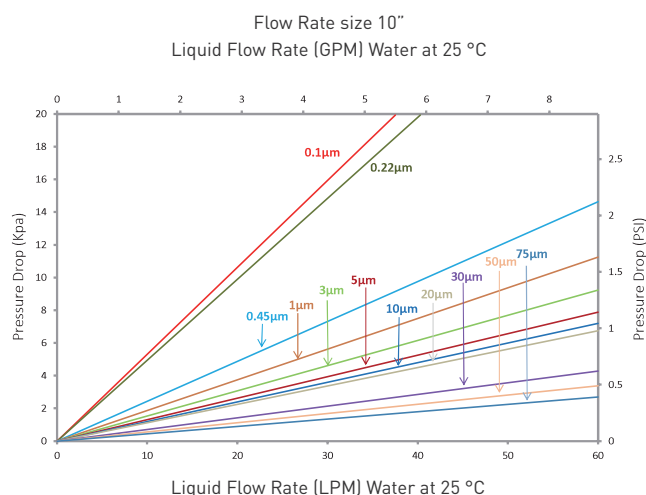
Max. Operating DP

4 bar @ 21°C , 2.4 bar @ 80 °C

## Quality

- Filter Cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified Quality Management System

Particle Removal Efficiency (µm)		
Membrane pore size identification	85% efficiency	95% efficiency
0010	0.1	----
0022	0.22	----
0045	0.45	----
0065	0.65	----
0100	1	----
0300	3	----
0500	5	----
1000	10	----
2000	20	----
5000	50	----



Eg.=> CFPPP0010G050AD0PSS0

ORDERING INFORMATION											
Product Type	Membrane Type	Removal Rating	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision	
CFP = Pleated Cartridge	PP = Polypro	0010 = 0.1µm	G = Gen Purpose	05 = 5"	0A = OD:69 mm	D0 = DOE	P = Polypro	S = Silicone	S= Standard	0 = Rev.0	
		0022 = 0.22µm		10 = 10"		E2 = 213/Flat	U = SUS Steel	E = EPDM			
		0045 = 0.45µm		20 = 20"		H1 = 222/Fin		B = NBR			
		0100 = 1µm		30 = 30"		H2 = 222/Flat		V = Viton	Y = SS reinforcement (Endcap D0, E2, K1, K2, excluded)		
		0300 = 3µm		40 = 40"		H5 = 222/Spear Fin		F = E-FKM			
		0500 = 5µm				K1 = 222 Ext/Fin			P = PSU reinforcement (Endcap G1, G2, only)		
		1000 = 10µm				K2 = 222 Ext/Flat					
		2000 = 20µm				G1 = 226/Fin					
		5000 = 50µm				G2 = 226/Flat					
		7500 = 75µm				G5 = 226/Spear Fin					

# CFP series PP media

## Nominal Rated PP Pleated Filter Cartridges

CFP series Nominal Rated PP Pleated Filter Cartridges are all-polypropylene filter cartridges made with sub-micron fine fiber filter media which provide smaller pores. It is fabricated without using any binders, adhesives, plasticizers, and surfactants. These filter cartridges can be repeatedly hot water sanitized. The filter media and its support structure are thermally welded to the end caps, making integral filter cartridges of minimum extractables in a wide range of fluids and applications. All the filter cartridges are manufactured in a clean room environment.



## Features

- Nominal rated structure, particle removal rating from 0.1 to 50 Micron
- Non fiber shedding
- 100% polypropylene components provide broad chemical compatibility, suitable for use in a variety of fluids
- Various end cap configurations to fit into the most standard housings
- Meet FDA requirements for food contact and passes European Commission Directives (EU10/2011)

## Applications

- Pharmaceutical Water
- RO Pre-Filtration
- Fine Chemicals
- Process Water

## Filtration Area

Ø 69mm: 0.6 m<sup>2</sup> / 10" Filter Cartridges

## Material of Constructions

- |                     |  |
|---------------------|--|
| • Media:            | PP                                     |
| • Support:          | PP                                     |
| • Cage/Core/Endcap: | PP                                     |
| • Connection:       | PP                                     |
| • Sealing:          | Silicone EPDM, NBR, Viton <sup>®</sup> |



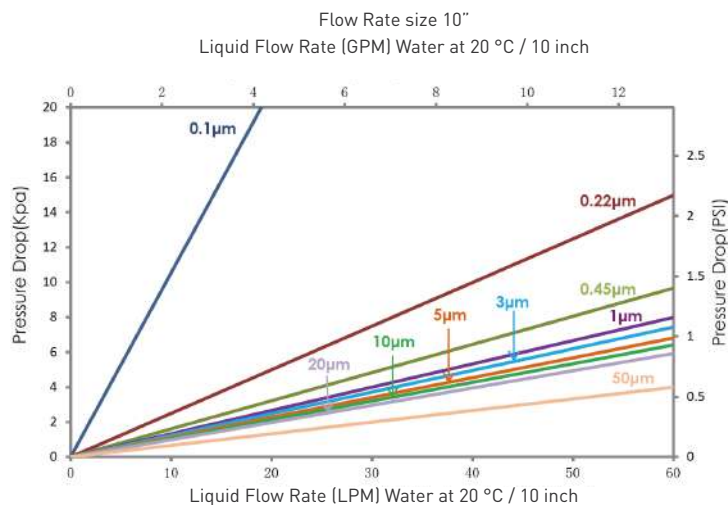
## Performance

Max. Operating temperature:

80 °C

Max. Operating DP:

4 bar @ 21 °C , 2.4 bar @ 80 °C



Particle Removal Ratings (µm)		
Membrane pore size identification	90% efficiency	95% efficiency
0010	0.1 µm	----
0022	0.22 µm	----
0045	0.45 µm	----
0065	0.65 µm	----
0100	1 µm	----
0300	3 µm	5 µm
0500	5 µm	10 µm
1000	10 µm	15 µm

## Quality

- Filter Cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified Quality Management System

## Food Contact Compliance

- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations 21 CFR.
- Materials used to produce filter media and hardware meet the specifications for biological safety per USP Class VI-121°C for plastics.
- Filter cartridges passed European Commission Directives (EU10/2011)
- Halal Certified

Eg. => **CFPPP0010C050AD0PSS0**

ORDERING INFORMATION											
Product Type	Membrane Type	Removal Rating	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision	
CFP = Pleated Cartridge	PP = Polypro	0010 = 0.1µm	C = Chem	05 = 5"	0A = OD:69 mm	D0 = DOE	P = Polypro	S = Silicone	S= Standard	0 = Rev.0	
		0022 = 0.22µm		10 = 10"		E2 = 213/Flat	U = SUS Steel	E = EPDM			
		0045 = 0.45µm		20 = 20"		H1 = 222/Fin		B = NBR			Y = SS reinforcement (Endcap D0, E2, K1, K2, excluded)
		0100 = 1µm		30 = 30"		H2 = 222/Flat		V = Viton			
		0300 = 3µm		40 = 40"		H5 = 222/Spear Fin		F = E-FKM			
		0500 = 5µm				K1 = 222 Ext/Fin			P = PSU reinforcement (Endcap G1, G2, only)		
		1000 = 10µm				K2 = 222 Ext/Flat					
		2000 = 20µm				G1 = 226/Fin					
		5000 = 50µm				G2 = 226/Flat					
						G5 = 226/Spear Fin					

# CFP series PP media

## High Rated PP Pleated Filter Cartridges

These CFP series filter cartridges are high rated pleated depth-type filters constructed of 100% polypropylene material. These filters are available in absolute particle retention ratings from 0.1 to 50 micron and various end cap configurations to fit into the most standard housings. All components of the series filter cartridges are FDA approved. The filter media and its support structure are thermally welded to the end caps, making integral filter cartridges of minimum extractables in a wide range of fluids and applications. All the filter cartridges are manufactured in a clean room environment.



### Features

- Absolute rated structure, particle removal rating from 0.1 to 50 Micron
- 100% polypropylene components provide broad chemical compatibility, suitable for use in a variety of fluids
- Consistent particle removal, no migration of filter media and non fiber shedding
- Meets FDA requirements for food contact and passes European Commission Directives (EU10/2011)

### Applications

- Food & Beverage
- Plating Chemicals
- RO Pre-Filtration
- Fine Chemicals
- Process Water

### Dimension

OD: 69mm

Length: 5" , 10" , 20" , 30" , 40"

### Material of Constructions

- Media: PP
- Support: PP
- Hardware : PP, SS core & adapter insert available
- Sealing: Silicone, EPDM, NBR Viton®, Teflon®, E-FKM

## Performance

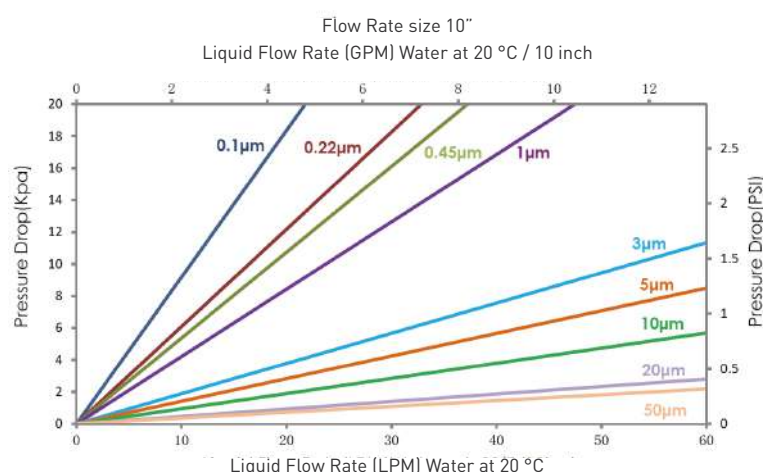
Max. Operating temperature: 80 °C  
 Max. Operating DP: 4 bar @ 21°C,  
 2.4 bar @ 80 °C

## Quality

- Filter Cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified Quality Management System

## Food Contact Compliance

- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations 21 CFR.
- Materials used to produce filter media and hardware meet the specifications for biological safety per USP Class VI-121°C for plastics.
- Filter cartridges passed European Commission Directives (EU10/2011)
- Halal Certified



Particle Removal Efficiency (µm)		
Membrane pore size identification	95% efficiency	99% efficiency
0010	0.1 µm	----
0022	0.22 µm	----
0045	0.45 µm	----
0065	0.65 µm	----
0100	----	1 µm
0300	----	3 µm
0500	----	5 µm
1000	----	10 µm

Eg.=> CFP001P050AD0PSS0

ORDERING INFORMATION										
Product Type	Removal Rating	Removal Rating	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFP = Pleated Cartridge	PP = Polypro	0010 = 0.1µm	P = Premier	05 = 5"	0A = OD:69 mm	D0 = DOE	P = Polypro	S = Silicone	S = Standard	0 = Rev.0
		0022 = 0.22µm		10 = 10"		E2 = 213/Flat				
		0045 = 0.45µm		20 = 20"		H1 = 222/Fin				
		0100 = 1µm		30 = 30"		H2 = 222/Flat				
		0300 = 3µm		40 = 40"		H5 = 222/Spear Fin				
		0500 = 5µm				K1 = 222 Ext/Fin				
		1000 = 10µm				K2 = 222 Ext/Flat				
		2000 = 20µm				G1 = 226/Fin				
		5000 = 50µm				G2 = 226/Flat				
						G5 = 226/Spear Fin				

# CFP series PP media

## Multi-Layers PP Pleated Filter Cartridges

CFP series Multi-Layers PP Pleated filter cartridges are comprised of multi-layers media.

The unique construction results in a highly porous, continuous-ly graded pore structure with a tighter inner layer and several outer prefilter layers to substantially increase the dirt holding capacity. This filter structure provides excellent flow rates at low pressure drops and high throughputs while achieving submicron retentions, high efficiencies, and extraordinary dirt holding capacities. The filter media and its support structure are thermally welded to the end caps, making integral filter cartridges of minimum extractables in a wide range of fluids and applications. All the filter cartridges are manufactured in a clean room environment.



### Features

- Gradient pore size structure
- 100% polypropylene components provide broad chemical compatibility, suitable for use in a variety of fluids
- Fixed filter matrix with no adhesives and surfactants providing consistent filtrate quality
- Meet FDA requirements for food contact and passes European Commission Directives (EU10/2011)

### Applications

- Food & Beverage
- Plating Chemicals
- RO Pre-Filtration
- Fine Chemicals
- Process Water
- Colloid material filtration
- High viscosity liquids
- Fermentation liquids

### Dimension

OD: 69 mm

Length: 5", 10", 20", 30", 40"

### Material of Constructions

- Media: PP
- Support: PP
- Cage/ Core/ Endcap: PP
- Sealing: EPDM, Viton®, E-FKM



## Performance

Max. Operating temperature:

80 °C

Max. Operating DP:

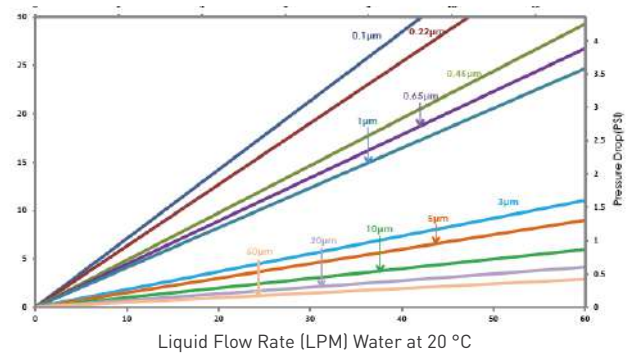
4 bar @ 21 °C,

2.4 bar @ 80 °C

## Quality

- Filter Cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified Quality Management System

Flow Rate size 10"  
Liquid Flow Rate (GPM) Water at 20 °C / 10 inch



## Food Contact Compliance

- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations 21CFR.
- Materials used to produce filter media and hardware meet the specifications for biological safety per USP Class VI-121 °C for plastics.
- Filter cartridges passed European Commission Directives (EU10/2011)
- Halal Certified

Eg.=> CFP001P050AD0PSS0

ORDERING INFORMATION										
Product Type	Membrane Type	Removal Rating	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFP = Pleated Cartridge	PP = Polypro	0010 = 0.1µm	M = M.layer Fil	05 = 5"	0A = OD:69 mm	D0 = DOE	P = Polypro	S = Silicone	S = Standard	0 = Rev.0
		0022 = 0.22µm		10 = 10"		E2 = 213/Flat				
		0045 = 0.45µm		20 = 20"		H1 = 222/Fin				
		0100 = 1µm		30 = 30"		H2 = 222/Flat				
		0300 = 3µm		40 = 40"		H5 = 222/Spear Fin				
		0500 = 5µm				K1 = 222 Ext/Fin				
		1000 = 10µm				K2 = 222 Ext/Flat				
		2000 = 20µm				G1 = 226/Fin				
		4000 = 40µm				G2 = 226/Flat				
		5000 = 50µm				G5 = 226/Spear Fin				

# **CFP series**

# **Hydrophobic PTFE**

# **membrane**

# CFP series Hydrophobic PTFE membrane

## General Applications Hydrophobic PTFE Pleated Filter Cartridges

CFP series General Applications Hydrophobic PTFE Pleated Filter Cartridges are made of polytetrafluoroethylene, and thus have excellent resistance to organic and inorganic chemical corrosive substances and have natural hydrophobicity of filtering materials. They are widely used in sterile filtration of strong solvents, strong corrosive liquids and strong oxidative liquids.



### Features

- Inherently hydrophobic PTFE membranes
- All PP components and low extractables
- High-flow and low pressure drop
- Enhanced resistance to in-line and autoclave steam sterilization
- 100% Integrity Test

### Applications

- Strong oxidative liquids filtration
- Prefiltration and terminal filtration of corrosive liquids
- Solvent materials filtration

### Dimension

Out Diameter	69 mm ( 2.72" )
Length	5", 10", 20", 30", 40"

### Material of Constructions

- Media: Hydrophobic PTFE
- Support: PP
- Cage/ Cage/ Endcap: PP
- Seal Material: Please refer to ordering information

## Performance

- Max Operating Temperature 80 °C
- Max Operating DP 4.5 bar @ 20 °C  
2.4 bar @ 80 °C

## Quality

- Filter Cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified
- Quality Management System
- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations 21 CFR 100% Integrity Tested
- Each individual element is tracked by serial number

Eg.=> CFPPT0010G050AD0PSS0

ORDERING INFORMATION										
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFP = Pleated Cartridge	PT = PTFE phobic	0010 = 0.1µm	G = Gen Purpose	05 = 5"	0A = OD:69 mm	D0 = D0E	P = Polypro	S = Silicone	S= Standard  Y = SS reinforcement (Endcap D0, E2, K1, K2, excluded)  P = PSU reinforcement (Endcap G1, G2, only)	0 = Rev.0
		0022 = 0.22µm		10 = 10"		E2 = 213/Flat	U = SUS Steel	E = EPDM		
		0045 = 0.45µm		20 = 20"		H1 = 222/Flat		B = NBR		
		0100 = 1µm		30 = 30"		H2 = 222/Flat		V = Viton		
		0300 = 3µm		40 = 40"		H5 = 222/Spear Fin		F = E-FKM		
		0500 = 5µm				K1 = 222 Ext/Fin				
		1000 = 10µm				K2 = 222 Ext/Flat				
						G1 = 226/Fin G2 = 226/Flat G5 = 226/Spear Fin				

# CFP series Hydrophobic PTFE membrane

## Sterilizing grade Hydrophobic PTFE Pleated Filter Cartridges

CFP series Sterilizing grade Hydrophobic PTFE Pleated Filter Cartridges are made of hydrophobic PTFE membrane and inherently hydrophobic PTFE membrane ensuring the sterilizing performance in different humidity environments. The PP components offer superior oxidation resistance. The reinforced core makes the filter cartridges have higher pressure resistance to withstand, The in-line steam sterilization and autoclave, it is suitable for fermentation, pharmaceutical, and other biotechnology applications.



### Features

- Inherently hydrophobic PTFE membranes
- Oxidation resistant hardware
- High-flow and low pressure drop
- Enhanced steaming resistance
- 100% Integrity tested

### Applications

- Corrosive gas sterile filtration
- Compressed air and nitrogen gas solution
- Aseptic packaging
- Fermenter inlet air and exhaust venting, sterile process air and sterile venting of tanks

### Dimension

Length	5" (125 mm) / 10" (254 mm) / 20" (500 mm) 30" (750 mm) / 40" (1000 mm)
Out Diameter	69 mm (2.72")
EFA	0.8 m <sup>2</sup> / 10"

### Integrity Test Parameters

- Bubble Point (BP)  $\geq 1.1$  bar @ IPA : Water 60 : 40
- Diffusion Flow (DF) CFPPT0020Y  $\leq 16$  ml / min @ 1035 mbar  
CFPPT0020S  $\leq 24$  ml / min @ 1035 mbar
- Water Intrusion (WIT) CFPPT0020Y  $\leq 0.38$  ml / min @ 2500 mbar  
CFPPT0020S  $\leq 0.75$  ml / min @ 2500 mbar

## Material of Constructions

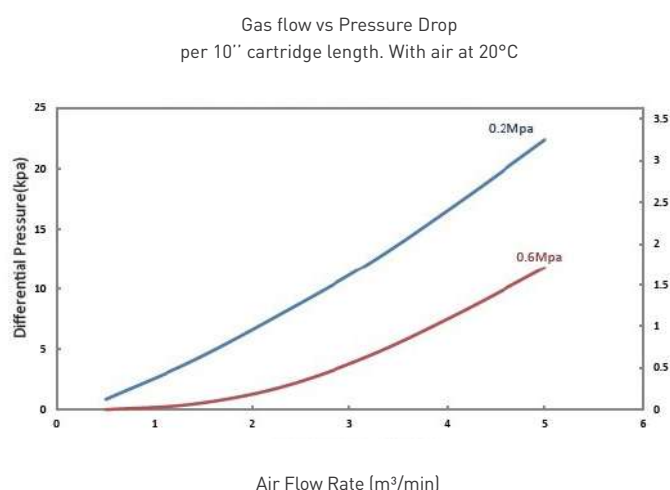
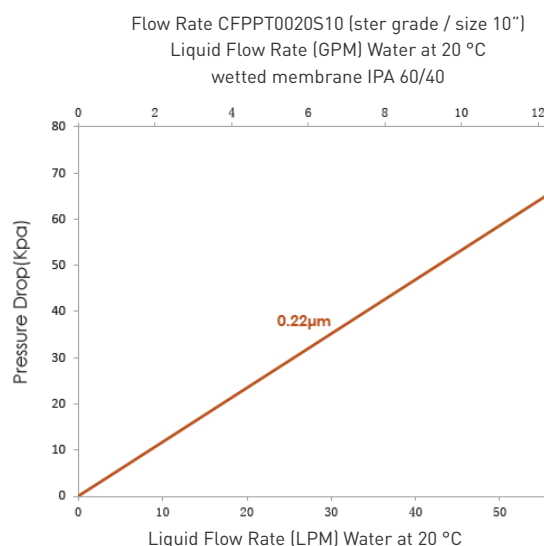
- Membranes: Inherently hydrophobic PTFE
- Support/Drainage: Oxidation resistant PP
- Cage/ Core/ Endcap: Oxidation resistant PP
- O-ring: Please refer to ordering information

## Performance

- Maximum operating temperature 80 °C
- Maximum differential pressure 2.4 bar @ 80 °C
- 5.2 bar @ 20 °C

## Sterilization

- Inline Steam Sterilization: 135 °C / 30 min, 150 cycles
- Maximum Forward Steam Sterilization: 1 bar @ 125 °C
- 0.3 bar @ 142 °C
- Maximum Reverse Steam Sterilization: 0.5 bar @ 125 °C
- 0.2 bar @ 142 °C



## Quality

- Filter cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified Quality Management System
- Material of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations 21 CFR
- 100% integrity tested
- Each individual element is tracked by serial number

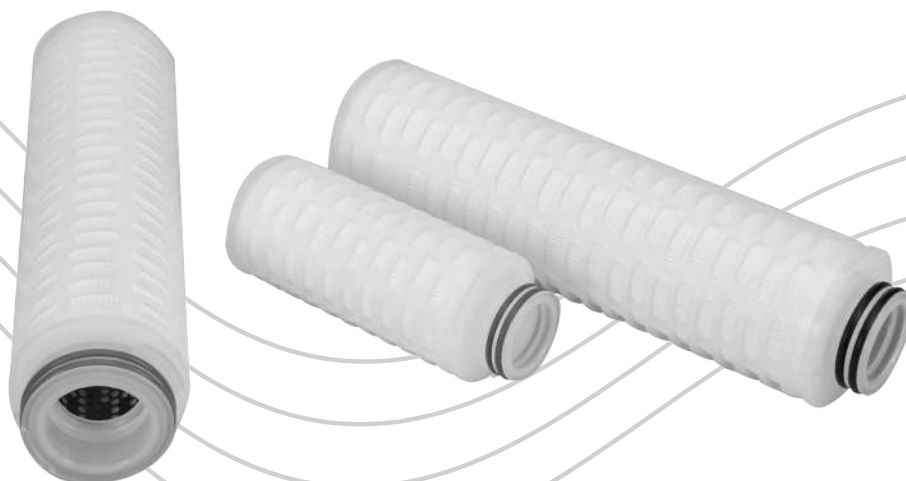
Eg.=>CFPPT0020S050AH1PSY0

ORDERING INFORMATION										
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFP = Pleated Cartridge	PT = PTFE phobic	0020 = 0.2µm	S = Ster Grade Y = P Ster Gr	05 = 5" 10 = 10" 20 = 20" 30 = 30" 40 = 40"	0A = OD:69 mm	H1 = 222/Fin H2 = 222/Flat G1 = 226/Fin G2 = 226/Flat	P = Polypro U = SUS Steel	S = Silicone E = EPDM V = Viton	Y = SS reinforced P = PSU reinforced (Endcap: G1,G2, only)	0 = Rev.0

# CFP series Hydrophobic PTFE membrane

## High-Temperature Sterilizing grade Hydrophobic PTFE Pleated Filter Cartridges

CFP series Hydrophobic PTFE membrane High-Temperature Sterilizing grade Pleated Filter Cartridges can ensure the sterilizing performance in different humidity environment. The oxidation resistant PP components offer superior oxidation and high temperature resistance, reinforced core makes the filter cartridge higher pressure resistance, withstand in-line steam sterilization and autoclave, it is suitable for fermentation, pharmaceutical and other biotechnology applications.



### Features

- Inherently hydrophobic PTFE membranes
- High temperature resistance
- Oxidation resistant hardware
- High-flow and low pressure drop
- Enhanced steaming resistance
- 100% Integrity tested

### Applications

- Process venting
- Compressed air
- Gas purification
- Fermentation feed air

### Dimension

Out Diameter

2.72" (69mm)

Length

5" (125mm) / 10" (254mm)

20" (500mm) 30" (750mm)

40" (1000mm)

### Integrity Test Parameters

- Diffusion Flow (DF)  $\leq 20$  ml/min @ 1035 mbar (60/40 IPA/Water)
- Water Intrusion (WIT) CFPPT0022U  $\leq 0.38$  ml/min @ 2500 mbar  
CFPPT0022T  $\leq 0.75$  ml/min @ 2500 mbar

## Material of Constructions

- Media PTFE
- Support PP/PET
- Cage/End Cap High temperature resistance PP
- Core High temperature resistance PP/SS
- Adapter PP with insert

## Pore Size

- Gas 0.01 µm
- Liquid 0.2 µm

## Performance

- Max Operating Temperature 100 °C
- Max Operating DP 5.2 bar @ 20 °C  
2.4 bar @ 80 °C

## Sterilization

- Inline Steam Sterilization 135 °C / 30 min, 150 cycles
- Maximum Forward Steam Sterilization 1 bar @ 135 °C  
0.3 bar @ 142 °C
- Maximum Reverse Steam Sterilization 0.5 bar @ 125 °C  
0.2 bar @ 142 °C

## Quality

- Filter cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified Quality Management System
- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations 21 CFR
- 100% Integrity Tested
- Each individual element is tracked by serial number

Eg.=> CFPPT0022T050AH1PSY0

ORDERING INFORMATION										
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFP = Pleated Cartridge	PT = PTFE phobic	0022 = 0.22µm	T = HT Ster Gr U = HT P Ste Gr	05 = 5"	0A = OD:69 mm	H1 = 222/Fin	P = Polypro	S = Silicone	Y = SS reinforced	0 = Rev.0
				10 = 10"		H2 = 222/Flat	U = SUS Steel	E = EPDM		
				20 = 20"		G1 = 226/Fin		V = Viton	P = PSU reinforced (Endcap: G1,G2, only)	
				30 = 30"		G2 = 226/Flat				
				40 = 40"						

# CFP series Hydrophobic PTFE membrane

## Absolute Rated Hydrophobic PTFE

### All Fluoropolymer Pleated Filter Cartridges

CFP series Absolute Rated Hydrophobic PTFE membrane, All Fluoropolymer Pleated Filter Cartridges are constructed PTFE support netting, and ultra-pure PFA hardware. This presents a filter cartridge with excellent chemical compatibility corrosion resistance, and low extractions to ensure high efficiency filtration and long service life with chemicals.



## Features

- Excellent chemical compatibility
- High flow rate, low pressure loss, long service life
- 100% integrity tested

## Applications

- Pharmaceutical products
- Fine chemicals
- Microelectronics fluids

## Dimension

- Outer Diameter
 

2.72" (69 mm)
3.3" (83 mm) Only 10 inch is available
- Length
 

10"/20"/30"/40"
-----------------
- Filtration Area:
 

$H100A = H / 10" / OD:69mm = 0.9 \text{ m}^2$	$H100H = H / 10" / OD:83mm = 1.51 \text{ m}^2$
---	--
- Premier Filtration Area
 

$K100A = K / 10" / OD:69mm = 1.12 \text{ m}^2$	$K100H = K / 10" / OD:83mm = 1.63 \text{ m}^2$
--	--

## Material of Constructions

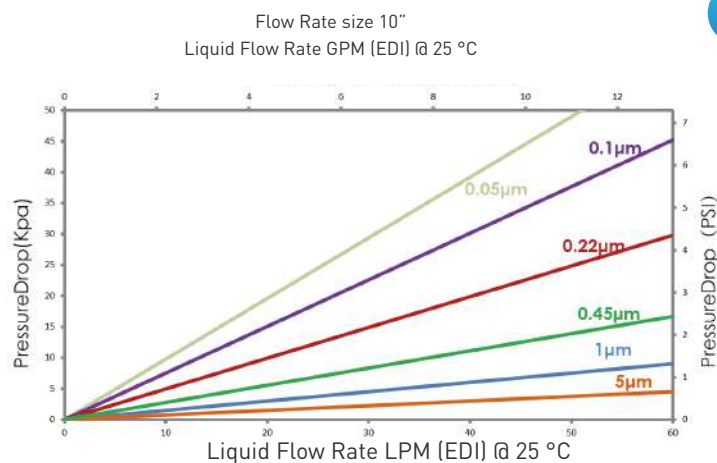
- Media
 

Hydrophobic PTFE membrane
---------------------------
- Support Netting
 

PFA/PTFE
----------
- Cage/Core/End Cap
 

PFA
-----
- Seal Material
 

E-FKM
-------

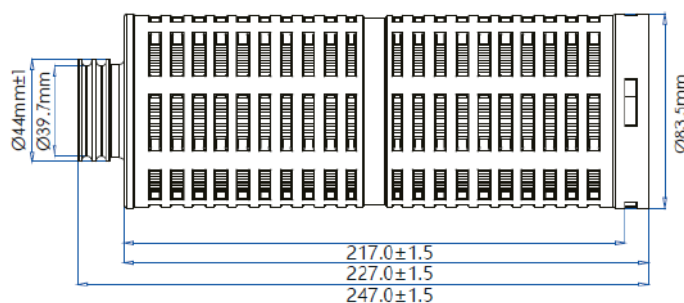
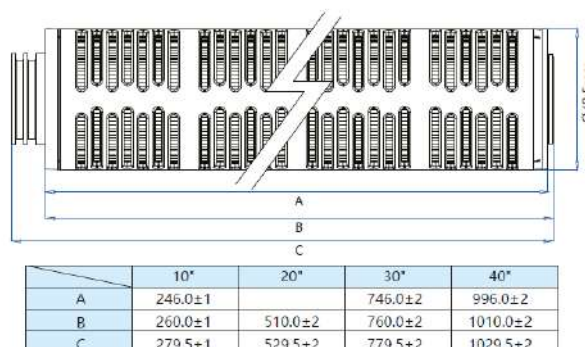
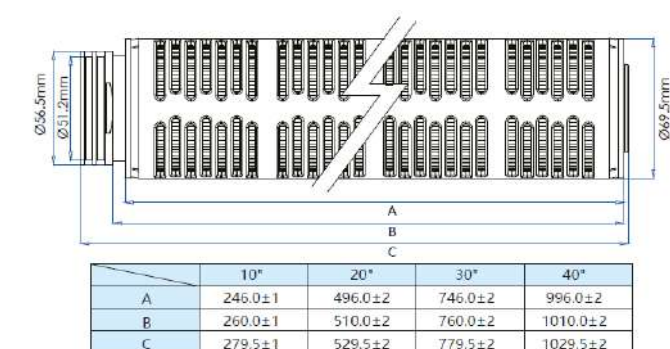


## Performance

- Max Operating Temperature 160 °C
- Max Operating DP 5.0 bar @ 20 °C  
2.0 bar @ 120 °C
- SIP 135 °C / 30 min

## Quality

- Filter cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified
- Quality Management System



Eg.=> CFPPT0005H100AH2FFS2

### ORDERING INFORMATION

Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFP = Pleated Cartridge	PT = PTFE phobic	0003=0.03µm	H = High Chem	10 = 10"	0A = OD:69 mm	H2 = 222/Flat	F = PFA	F = E-FKM	S= Standard	2 = Prewet
		0005 = 0.05µm	K = P High Chem	20 = 20"	0H = OD:83mm (Size: 10, only)	G2 = 226/Flat				3 = No-Prewet
		0010 = 0.1µm		30 = 30"						5 = H.CL Prew
		0020 = 0.20µm		40 = 40"						6 = H.CL No-Prew
		0045 = 0.45µm								
		0100 = 1µm								
		0500 = 5µm								

# CFP series Nylon membrane

# CFP series Nylon membrane

## General Applications NY Pleated Filter Cartridges

CFP series Nylon membrane General Applications Pleated Filter Cartridges are naturally hydrophilic due to polyamides filter media. This filter media has a high porosity and uniform pore size distribution, giving to series products high flow rate, high retention ability and long service life.



### Features

- Naturally hydrophilic, no need for pre-wetting
- High flow rate, low DP and long service life
- Excellent integrity provides good particle removal and sterilization efficiency
- Non-contact welding adopted, no adhesives, low extractables
- Excellent chemical compactivity
- Tolerance for in-line steam sterilization
- Gross integrity

### Applications

- Large volume parenterals (LVP) injections and antibiotic filtration
- Physiological saline solution and other solvents filtration of microorganism removal
- Pure Water and water-based filtration of microorganism removal

### Dimension

Out Diameter	2,72" (69 mm)
Length	5" (125 mm)
	10" (254 mm)
	20" (500 mm)
	30" (750 mm)
	40" (1000 mm)

### Quality

- Filter Cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified Quality Management System

## Food Contact Compliance

- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations 21 CFR.
- Materials used to produce filter media and hardware meet the specifications for biological safety per USP Class VI-121C for plastics.
- Filter cartridges passed European Commission Directives (EU10/2011)
- Halal Certified

## Material of Constructions

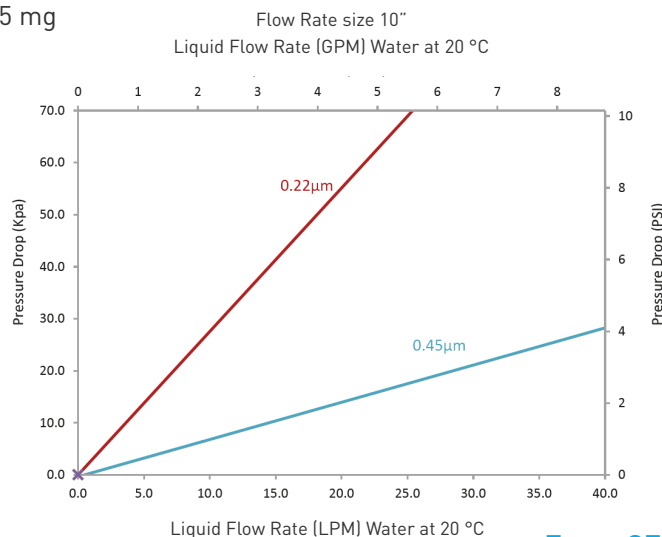
Filter medium	Nylon N66
Support/Drainage	PET
Cage/Core	Polypropylene
Endcap	Polypropylene and Insert

## Performance

- Max Operating Temperature 80 °C
- Max Operating DP Forward 4.0 bar @ 25 °C  
Forward 2.4 bar @ 80 °C
- SIP 125 °C , 30min

## Guarantees

- Manufactured in 100,000-class clean room environment
- Manufactured according to ISO9001:2015 certified quality management system
- Meets USP Biological Reactivity Test Requirements of the current USP <88> for plastic class VI
- Extractables per 10 inch < 25 mg



Eg.=> CFPNY0010G050AD0PSS0

ORDERING INFORMATION										
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFP = Pleated Cartridge	NY = Nylon	0010 = 0.1µm	G = Gen Purpose	05 = 5"	OA = OD:69 mm	D0 = D0E	P = Polypro	S = Silicone	S= Standard (Endcap: D0, only)	0 = Rev.0
		0022 = 0.22µm		10 = 10"		H1 = 222/Fin				
		0045 = 0.45µm		20 = 20"		H2 = 222/Flat				
		0120 = 1.2µm		30 = 30"		G1 = 226/Fin				
				40 = 40"		G2 = 226/Flat				
								B = NBR	Y = SS reinforced (Endcap: D0, excluded)	
								V = Viton	P = PSU reinforced (Endcap: G1, G2, only)	
								K = FKM		
								F = E-FKM		

# CFP Series Glass Fiber media

# CFP Series - Glass Fiber Media

## General Applications Glass Fiber Pleated Filter Cartridges

The CFP series General Applications Glass Fiber (GF) Pleated Filter cartridges are highly efficient, good for the pre-filtration of gas and vent, and can be effectively used in a variety of industrial applications. The cartridge offers a large surface area for high flow rates and high dirt holding capacity, also reduces labor costs with less changing of the filters.



## Features

- Low pressure drops and high flow rates
- High filtration efficiency, up to 96%
- Excellent chemical compatibility
- High dirt holding capacity and long service life

## Applications

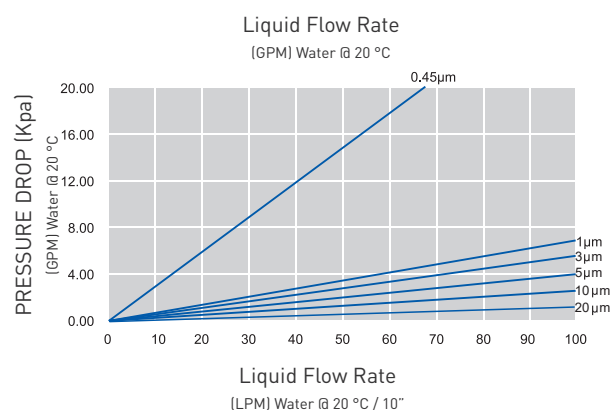
- Food & Beverage
- Chemicals & Oil
- Pharmaceutical
- Process Water Treatment
- Pre-filtration of vent & gas

## Dimension

Diameter	69 mm
Length	5", 10", 20", 30", 40"

## Food Contact Compliance

- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations 21CFR
- Materials used to produce filter media and hardware meet the specifications for biological safety per USP Class VI-121 °C for plastics
- Filter cartridges passed European Commission Directives (EU10/2011)
- Halal Certified



## Material of Constructions

- Media GF
- Support PP
- Core/Cage/End Cap PP
- Seal Material Silicone, EPDM, NBR, FKM, E-FKM

## Performance

### Operating Conditions

- Max. Operating Temperature 80 °C
- Max. Operating DP 4.0 Bar @ 20 °C
- 2.4 Bar @ 80 °C

## Quality

- Filter Cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified Quality Management System

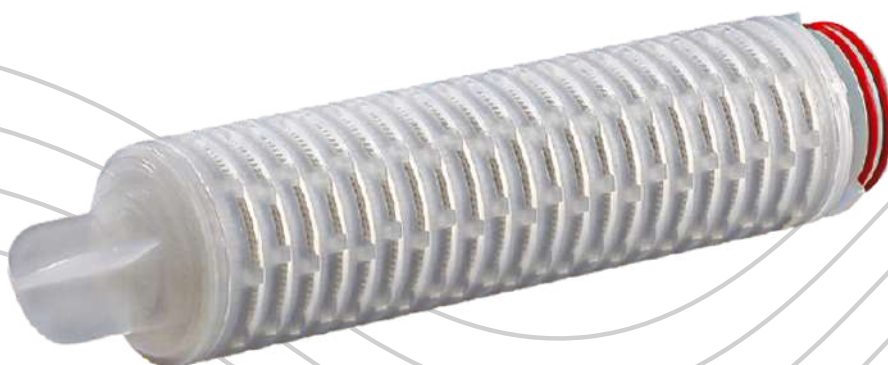
Eg=> CFPGF0045G050AD0PSS0

ORDERING INFORMATION										
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFP = Pleated Cartridge Filter	GF = Glass Fiber	0045 = 0.45µm	G = Gen Purpose	05 = 5"	0A = OD:69 mm	D0 = DOE	P = Polypro	S = Silicone	S = Standard	0 = Rev.0
		0100 = 1µm		10 = 10"		E2 = 213/Flat	S = SS Steel	E = EPDM		
		0300 = 3µm		20 = 20"		H1 = 222/Fin		B = NBR		
		0500 = 5µm		30 = 30"		H2 = 222/Flat		V = Viton	Y = SS reinforcement (Endcap D0, E2, H1, H2, excluded)	
		1000 = 10µm		40 = 40"		H5 = 222/Spear Fin		F = E-FKM		
		2000 = 20µm				K1 = 222 Ext/Fin			P = PSU reinforcement (Endcap G1, G2, only)	
						K2 = 222 Ext/Flat				
						G1 = 226/Fin				
						G2 = 226/Flat				
						G5 = 226/Spear Fin				

# CFP Series - Glass Fiber media

## High Performance Glass Fiber Pleated Filter Cartridges

The CFP series High Performance Glass Fiber (GF) Pleated Filter cartridges are made of ultra-fine glass fiber. It has a high retention efficiency up to 96% which can effectively protect and prolong service life of terminal sterilization filters. It is widely used in the pre-filtration of gases etc.



### Features

- No fiber releasing, very low leachables
- High flow rates and low pressure drops
- Excellent adsorption performance and high filtration efficiency
- All components comply with FDA regulations
- 100% integrity tested

### Applications

- Remove particles in compressed gas, oil etc.
- Pre-filtration of gases in fermentation

### Dimension

Diameter	69 mm
Length	5", 10", 20", 30", 40"

### Food Contact Compliance

- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations 21CFR
- Materials used to produce filter media and hardware meet the specifications for biological safety per USP Class VI-121 °C for plastics
- Filter cartridges passed European Commission Directives (EU10/2011)
- Halal Certified

## Material of Constructions

- Media GF
- Support PP
- Cage/Core/End PP
- O-Ring Silicone, EPDM, NBR, FKM, E-FKM

## Quality

- Filter Cartridges are manufactured in a clean room environment
- Manufactured according to ISO9001:2015 certified Quality Management System
- 100% integrity test

## Performance

### Operating Conditions

Max Operating Temperature	80 °C
Max. Operating DP	4.0 bar @ 20 °C
	2.4 bar @ 80 °C

### Sterilization

Autoclave Sterilization	121 °C , 60 min
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### Filtration Area

Ø 69mm	0.45 m <sup>2</sup> /10" Filter cartridges
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### Extractables

10" Filter Cartridges	< 20 mg
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Eg.=> CFPGF0010P50AD0PSS0

ORDERING INFORMATION										
Product Type	Membrane Type	Removal Rating	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFP = Pleated Cartridge	GF = Glass Fiber	0010=0.1µm	P = Premier	5 = 5"	0A = OD:69 mm	D0 = DOE	P = PP Core	S = Silicone	S = Standard	0 = Rev.0
		0030=0.3µm		10 = 10"		E2 = 213/Flat	S = SS Core	E = EPDM		
		0050=0.5µm		20 = 20"		H1 = 222/Fin		B = NBR	Y = SS reinforcement (Endcap D0, E2, H1, H2, excluded]	
				30 = 30"		H2 = 222/Flat		V = FKM		
				40 = 40"		H5 = 222/Spear Fin		F = E-FKM		
						K1 = 222 Ext/Fin			P = PSU reinforcement (Endcap G1, G2, only)	
						K2 = 222 Ext/Flat				
						G1 = 226/Fin				
						G2 = 226/Flat				
						G2 = 226/Flat				

# CFW series Glass Fibe String Wound

# CFW series Glass Fiber String Wound

## High Dirt Filter Cartridges

CFW Series String Wound Filter Cartridges are manufactured of structured loose outer layers and tight inner layers to offer true depth filtration for high dirt holding capacity and extremely low media migration. The main advantage of the string wound filter cartridge is its exceptionally high structural strength. Therefore, they can withstand higher PSID and severe operating conditions. The economical design makes the cartridges of greater superiority in cost-saving.



### Features

- Broad chemical compatibility
- Many different combinations of filter materials and pore sizes
- String Wound depth filter cartridge
- High dirt holding capacity
- Economical design

### Applications

- Consumer Products
- Food and Beverage
- Drinking Water
- Pharmaceutical
- Edible Oil
- Inks & Paints
- Photographic
- Plating Solutions
- Petrochemicals
- Waste Water
- Chemicals
- Oil

### Dimension

Out Diameter

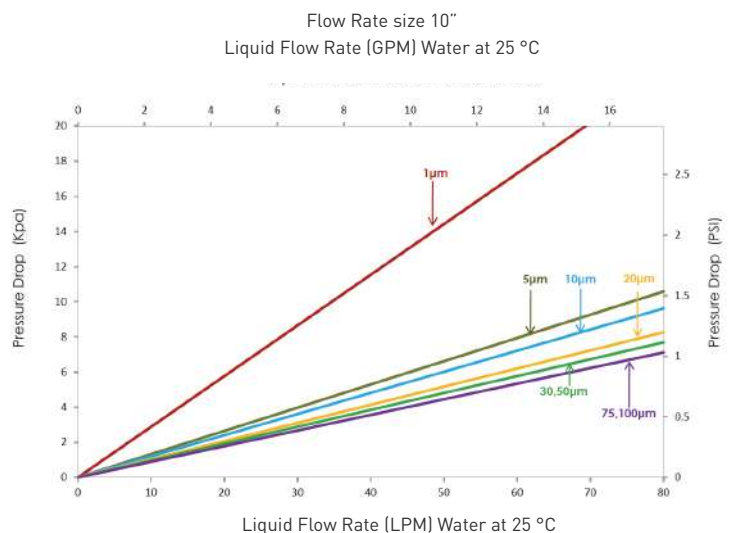
63 mm [ 2.5" ] , 115 mm [ 4.5" ]

Inner Diameter

28 mm

Length

9.87", 10", 20", 30", 40"



Particle Removal Efficiency		
Membrane pore size identification	85% efficiency	95% efficiency
CFW 0100	1	----
CFW 0500	5	----
CFW 1000	10	----
CFW 2000	----	20
CFW 3000	----	30
CFW 5000	----	50
CFW 7500	----	75
CFW 10000	----	100

## Material of Constructions

- Media PP, Bleached Cotton, Glass Fiber
- Inner Core PP, SS

## Performance

- Max. operating temperature PP: 80 °C  
Cotton: 120 °C  
Glass Fiber: 200 °C
- Max. pressure drop 2.0 bar @ 25 °C

Eg.=> CFWCW0100D98MD0POS0

ORDERING INFORMATION										
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFW = String Wound Cartridge	CW = Cotton S.W.	0010=0.1µm	D = High Dirt	98 = 9.87"	0M = OD:63 mm	F = DOE	P = Polypro	O = No seal Mat	S = Standard	0 = Rev.0
	PW = Polypro S.W.	0030=0.3µm		10 = 10"	0L = OD:115 mm	M = 222 / Flat	S = SS Steel	S = Silicone		
	GW = Glass Fiber S.W.	0050=0.5µm		20 = 20"		T = 226 / Flat		E = EPDM		
				30 = 30"		P = 222 / Fin		B = NBR		
				40 = 40"		Q = 226 / Fin		V = Viton		
						H = 213 / Flat				
						E = 222 Extended / Fin				
						N = 222 Extended / Flat				
					W = 222 Spear Fin					

# CFM series PP Melt Blown

# CFM series PP Melt Blown PP

## Melt Blown Standard Filter Cartridges

CFM series PP Melt Blown Standard Filter Cartridges are fused and intertwined with polypropylene resin without any chemical glues. The cartridge is glued at random to form 3D micro pore which will make the cartridge's 3 layers with fibers on the surface and inside. With the fiber, density from high filtration rating, strong pollutants hold capacity, low pressure drop, gradual changing structure loose outside and close inside, it can remove contaminant effectively, -such as suspended substance, particulate and rust, providing efficient filtration and long service life.



## Applications

- R.O. Pre-filtration
- Food and Beverage
- Industry Water, Plating Solution
- Chemical, Organic Solvent Filtration
- Microelectronics
- Pharmaceuticals

Membrane pore size identification	Particle Removal Efficiency	
	85% efficiency	90% efficiency
1	1	----
3	3	----
5	5	----
10	----	10
25	----	25
50	----	50
75	----	75
100	----	100

## Material of Constructions

- Media
- End Cap
- Sealing
- Core

PP  
PP  
Silicone, EPDM, NBR, Viton®  
PP

## Dimension

Out Diameter

63 mm ( 2.5" ) , 115 mm ( 4.5" )

Inner Diameter

28 mm

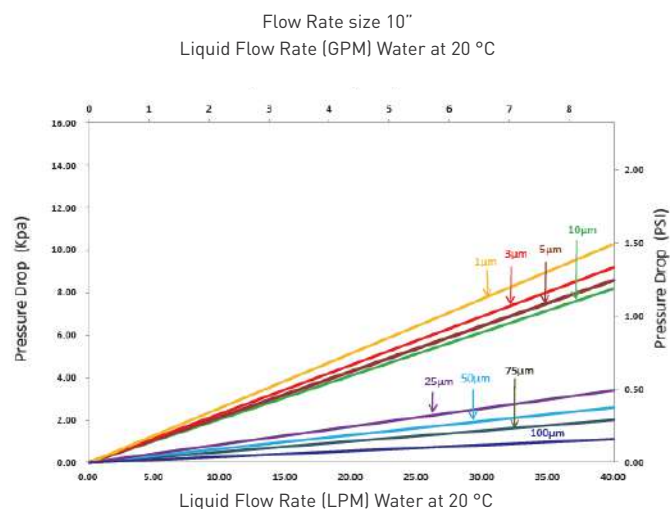
Length

9,87", 10", 20", 30", 40"

## Performance

- Max Operating Temperature
- Max Operating DP

65 °C  
2.0 bar @ 21 °C



Tested and certified by NSF international to NSF/ANSI 42 for material requirement only.

Eg.=> CFMPP0100G97ZBD4X7X0

ORDERING INFORMATION										
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFM = Meltblown Cartridge	PP = Polypro,	0100 = 1µm	G = Gen Purpose	97 = 9.75"	ZB = 28/63mm	D4 = DOE no Endcap	X = No core	O = No seal mat	X = No supp	0 = Rev.0
		0300 = 3µm		98 = 9.87"	ZD = 28/115mm	D5 = DOE PE gasket	P = Polypro	B = NBR		
		0500 = 5µm		10 = 10"		H1 = 222/Fin		E = EPDM		
		1000 = 10µm		20 = 20"		H2 = 222/Flat		V = Viton		
		2500 = 25µm		30 = 30"		G1 = 226/Fin				
		5000 = 50µm		40 = 40"		G2 = 226/Flat				
		7500 = 75µm								
		X100 = 100µm								

# **CJD series Junior Pleated Cartridge**

# CJD series Junior Pleated Cartridge

GVS's range of 56mm OD CJD filter elements are offered in multiple grades of PES and PTFE membrane as well as absolute-rated pleated polypropylene depth media. Designed to easily retrofit Pall® Junior, Millipore Optiseal®, and compatible housings.



## Features

- Polypropylene depth media option offers ratings from 0.2um to 70um with high capacity and low pressure drop
- Hydrophilic PES and hydrophobic PTFE membranes available in ratings from 0.03 to 1 micron. Integrity testing assures consistent, highly retentive performance. High tolerance to repeated cleaning and steaming cycles
- Products are manufactured in a controlled environment under a quality management system certified to ISO9001:2015

## Applications

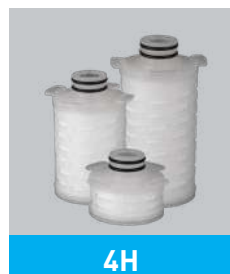
- Small-Batch Pharmaceutical, Bio-Technology, and Ophthalmic Products
  - Bio-reduction and clarification of ingredients and final products
- Semiconductor and Micro-Electronic fluids, fine chemicals
  - Cleaners, solvents, photoresist & developer solutions & process chemicals
- Pilot-Scale Investigations and R&D process development
  - Facilitates optimizations and scale-up

## Material of Constructions

- Media PP, PES, PTFE
- Support PP
- Cage/Core/End PP
- Sealing Silicone, EPDM, FKM

## Performance

- Max. Temperature 80°C(176°F)
- Max. dP (forward) 5 bar(73 psi) @ 50°C(122°F)
- Pressure 3 bar(44 psi) @ 90°C(194°F)  
0.3 bar(4 psi) @ 90°C(194°F) reverse



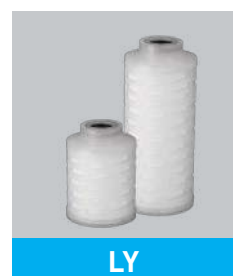
4H



8H



SY



LY

## PP Junior Cartridge

ORDERING INFORMATION										
Product Type	Membrane Type	Removal Rating	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CJD=Junior Pleated Cartridge	PP = Polypro	0100 = 1µm	P =Premier	H3=32mm H8=82mm X5=105mm For 4H	OF =OD:56mm	4H=AS118 15.3mm	P=PP	E=EPDM	S=Standard	0 = Rev.0
		0022=0.22µm		X7=107mm For 8H		8H=AS123 10.5mm		S=Silicone		
		0045=0.45µm		S7=70mm Y9=129mm For SY		SY=AS116 5mm		K=FKM		
		0100=1.0µm		L7=77mm Z6=136mm For LY		LY=AS116 12mm				
		0300 = 3µm								
		0500 = 5µm								
		1000 = 10µm								
		2000 = 20µm								
		5000 = 50µm								

## PES Junior Cartridge

ORDERING INFORMATION										
Product Type	Membrane Type	Removal Rating	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CJD=Junior Pleated Cartridge	PS= PES	0004 = 0.04µm	S =Ster Grade	H3=32mm H8=82mm X5=105mm For 4H	OF =OD:56mm	4H=AS118 15.3mm	P=PP	E=EPDM	S=Standard	0 = Rev.0
		0010=0.1µm		X7=107mm For 8H		8H=AS123 10.5mm		S=Silicone		
		0022=0.22µm		S7=70mm Y9=129mm For SY		SY=AS116 5mm		K=FKM		
		0045=0.45µm		L7=77mm Z6=136mm For LY		LY=AS116 12mm				
		0065 = 0.65µm								
		0120 = 1.2µm								

## PTFE Junior Cartridge

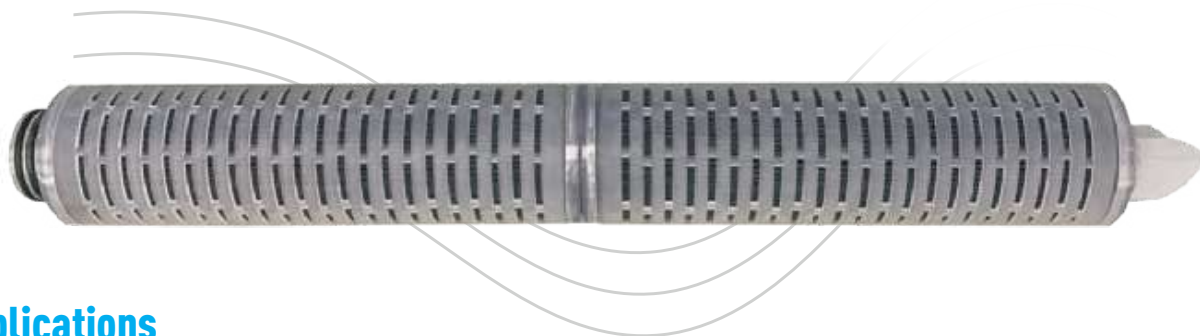
ORDERING INFORMATION										
Product Type	Membrane Type	Removal Rating	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CJD=Junior Pleated Cartridge	PT= PTFE	Application G	G =Gen Purpose	H3=32mm H8=82mm X5=105mm For 4H	OF =OD:56mm	4H=AS118 15.3mm	P=PP	E=EPDM	S=Standard	0 = Rev.0
		0010=0.1µm		X7=107mm For 8H		8H=AS123 10.5mm		S=Silicone		
		0022=0.22µm		S7=70mm Y9=129mm For SY		SY=AS116 5mm		K=FKM		
		0045=0.45µm		L7=77mm Z6=136mm For LY		LY=AS116 12mm				
		0100= 1.0µm	Application S							
		0300 = 3.0µm								
		0500=5.00µm								
		1000=10.00µm								
		0010=0.1µm								
		0022=0.22µm								
		0045=0.45µm								
		0100=1.0µm								

# **CCD Series Carbon Cellulose Pleated Filter Cartridges**

# CCD Series

## Carbon Cellulose Pleated Filter Cartridges

CCD Carbon Cellulose Pleated Filter Cartridges are made of high performance carbon impregnated cellulose media as well as FDA corresponding PP hardware and seal material. The media has features of narrow pore size distribution, big surface area, fast adsorption and desorption speed, good formability and other advantages. The main application of this filter cartridge is decolorizing filtration for pharmaceutical liquids and fine chemical products.



## Applications

- Decolorizing filtration of organic solvent
- Decolorizing filtration of antibiotic, antivirus, hormone drugs
- Decolorizing filtration of Vitamins, amino acids, sugar, starch
- Decolorizing filtration of pesticide, fine chemical products

## Dimension

Outer Diameter: 69 mm

Length: 5", 10", 20", 30", 40"

## Performance

Micro rating: 5 µm

PH: 1-13

Max Operating Temperature: ≤ 50°C

Max Operating Pressure: 65°C, 1.0 bar / 80°C

Max. Operating DP: 4 bar @ 20°C, 1 bar @ 65°C

## Material of Constructions

Media: carbon impregnated  
Support: cellulose media PP  
Cage/Core/End cap: PP  
Sealing: Silicon, EPDM, FKM

Eg.=> CCDCI0500L100AG1PSY0

Product Type	Membrane Type	Membrane Pore Size	Application	Size	Diameter	Endcap	Inner Core	Seal Material	Connection Support	Revision
CCD = Carbon Cellulose Pleated Filter Cartridges	CI = Carbon impregnated Cellulose	0500 = 5µm	L = Decolorizing	05 = 5"	0A = OD: 69 mm	H2 = 222/Flat	P = Polypro	S = Silicone	Y = SS reinforcement	0 = Rev.0
				10 = 10"		H1 = 222/Fin		E = EPDM		
				20 = 20"		G1 = 226/Fin		K = FKM		
				30 = 30"		G2 = 226/Flat				
				40 = 40"						

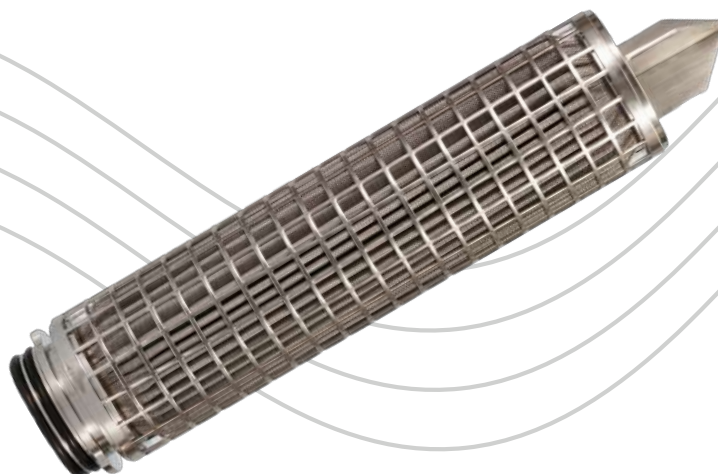
# **SPK Series Stainless Steel**

# Stainless Steel filter

## Stainless Steel Pleated Filter Cartridge

The GVS Stainless Steel pleated filter Cartridge are composed of pleated woven stainless steel meshes.

The pleating process makes the filter media have a large effective filtration area, high dirt holding capacity and high flow rates. Sealing undergoes argon arc welding process, providing no leakage and excellent performance in high temperature and high pressure filtration environment. The filter cartridge can be cleaned repeatedly.



## Features

- Homogeneous pore sizes, good Permeability
- Metal media possess high mechanical strength and no releasing media
- Strong corrosive resistance, does not
- Washable with long lifetime

## Application

- Steam Filtration
- Oxidizing Liquid filtration
- Filtration of high viscosity liquids
- Liquid Decarburization filtration

## Dimension

Outer Diameter: 60mm, 65mm, 68mm

Length: 5", 10", 20", 30", 40"

## Material of Constructions

- Media 304/316L
- Core/Cage/Endcap 304/316L
- Seal Material Silicone, EPDM, NBR, E-FKM

## Performance

- Maximum operating temperature 300°C
- Maximum working differential pressure: 5.0 bar

## Quality

Manufactured according to ISO9001:

2015 certified Quality Management System

ORDERING INFORMATION										
Product Type	Membrane Type	Membrane Pore Size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
SPK-S-Steel Pleated Cartridge	SS=S304	0100 = 1µm	G=Gen Purpose	05=5"	0G=OD:60mm	D0=D0E	S=Standard	S=Silicone	S=Standard	0 = Rev.0
	SL=S316L	0300=3µm		10=10"	0E=OD:65mm	H2=222/Flat		E=EPDM		
		0500=5µm		20=20"	0B=OD:68mm	G2=226/Flat		B=NBR		
		1000=10µm		30=30"		S1=Screw		V=Viton		
		2000 = 20µm		40=40"				F=E-FKM		

# Stainless Steel filter

## Stainless Steel Sintered filter cartridge

GVS Metal Sintered filter cartridge is a microporous filter media formed by high purity stainless steel powder or titanium powder as raw material by high temperature and high vacuum sintering process.

The filter media has high porosity, good mechanical properties, excellent chemical compatibility, no shedding, extremely low dissolution. Filter can be repeatedly cleaned and reused with low operating cost.



### Features

- Tubular porous structure
- Metal material has high mechanical strength and no media falling off
- Good temperature resistance
- Washable and long-lasting

### Application

- Steam Filtration
- Filtration of corrosive reagents
- High temperature fluid filtration
- Liquid Decarburization filtration

### Dimension

Outer Diameter: 60mm, 65mm, 68mm

Length: 5", 10", 20", 30", 40"

### Material of Constructions

- Media SS304/SS316L/Titanium
- Core/Cage/Endcap 304/316L
- Seal Silicone, EPDM, NBR, E-FKM

### Performance

- Media SS304/SS316L/Titanium
- Core/Cage/Endcap 304/316L
- Seal Silicone, EPDM, NBR, E-FKM

### Quality

Manufactured according to ISO9001:

2015 certified Quality Management System

ORDERING INFORMATION										
Product Type	Membrane Type	Membrane Pore Size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CTK = Titanium Powder Cartridge	SS=SS304	0100 = 1µm	G=Gen Purpose	05=5"	0G=OD:60mm	D0=D0E	S=Standard	S=Silicone	S=Standard	0 = Rev.0
CPK = S-Steel Powder Cartridge	SL=SS316L	0300=3µm		10=10"	0E=OD:65mm	H2=222/Flat		E=EPDM		
	TL=Titanium	0500=5µm		20=20"	0B=OD:68mm	G2=226/Flat		B=NBR		
		1000=10µm				S1=Screw		V=Viton		
								F=E-FKM		

# Bio Depth Capsule Filter

## Description and use

The Bio Depth Capsule Filter are designed for Bio-products industry which mainly used in cell harvest clarification and downstream liquid filtration. The MSBDID is for lab scale filtration, MSBDED is for pilot testing research and lab scale protein production. The MSBDRD includes three models with different processing capabilities: small, large and integrated models. All models are comprised of a holder, a set of top and bottom separators, and a number of filter modules that can be adjusted. The Bio Depth Capsule Filters have completely independent filter medium, its pore size of upper and lower layer is asymmetrical, this design not only helps to enhance the contaminant holding capacity but also helps to extend the service life of the filter cartridge.

## Application

- Culture medium filtration
- Cell lysates filtration
- Host cell protein or hybrid protein aggregates filtration
- Protect downstream process

## Features

- Disposable design makes it easier to install and dismantle
- High contaminant holding capacity
- High filtration efficiency for impurities
- Manufactured in a clean room environment

## Bio-Safety

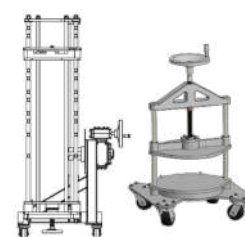
Endotoxin	Comply with USP<85>, endotoxin content <0.25EU/ mL
Biocompatibility	Comply with USP<87>USP<88>

## Construction of Materials

Media/Cellulose	filter-aids and resins
Core/Cage/End Cap	PP/PC
Seal Material Option	Silicone

## Performance

Max. Operating Temperature	40 °C(104°F)
Max. Operating DP	3 bar (44 psi) 125°C, 30min,
Autoclaving	1 cycle



**MSBDD-L**

**Filter Holders**

Filtration Area: 4000cm<sup>2</sup>



**MSBDID**

Filtration Area: 34cm<sup>2</sup>



**MSBDED-S**

Filtration Area: 1600cm<sup>2</sup>



**Single cell capsule**

Filtration Area: 0.23m<sup>2</sup>(2.4ft<sup>2</sup>)



**Multicell capsule**

Dual layer:1 .6m<sup>2</sup>(17.2ft<sup>2</sup>)  
Single layer:2 .5m<sup>2</sup>(27.0ft<sup>2</sup>)

ORDERING INFORMATION		
Product Type	Core	Removal Rating
MSBDID	P = PP	C0102 = 0.1~0.4µm C0105 = 0.1~0.8µm C0140 = 0.1~9µm C0240 = 0.2~9µm C0290 = 0.2~20µm C0690 = 0.6~20µm C0890 = 0.8~20µm

ORDERING INFORMATION			
Product Type	Core	Removal Rating	Length
MSBDID	P = PP	C0102 = 0.1~0.4µm C0105 = 0.1~0.8µm C0140 = 0.1~9µm C0240 = 0.2~9µm C0290 = 0.2~20µm C0690 = 0.6~20µm C0890 = 0.8~20µm	S = Short L = Long

ORDERING INFORMATION						
Product Type	Membrane	Removal Rating	Filter Cell	Layer		Seal Material
MSBDID	C = PC	C0102 = 0.1~0.4µm C0105 = 0.1~0.8µm C0140 = 0.1~9µm C0240 = 0.2~9µm C0290 = 0.2~20µm C0690 = 0.6~20µm C0890 = 0.8~20µm	S= Single-Cell Capsule L = Multi-Cell Capsule	001=1 003=3 005=5 007=7 009=9 011=11	002=2 004=4 006=6 008=8 010=10	S = Silicone B=None T=Top R=Bottom TR= Top + Bottom

# APPENDIX

# CARTFLOW DIMENSIONS

## Pleated cartridge membrane: PES, PSU, PTFE, Nylon

### Endcap

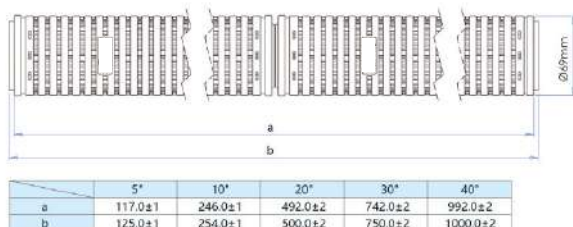
### Connection support

### Endcap

### Connection support

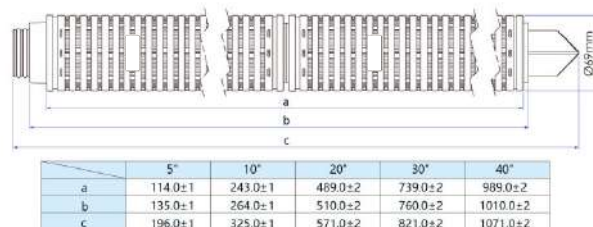
#### DOE

#### Standard



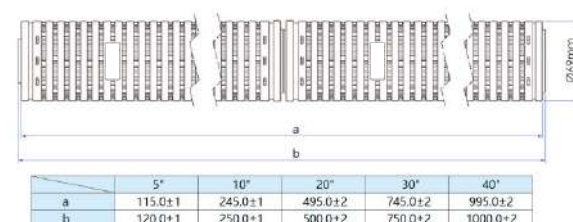
#### 222/ Spear Fin

#### SS Reinforced



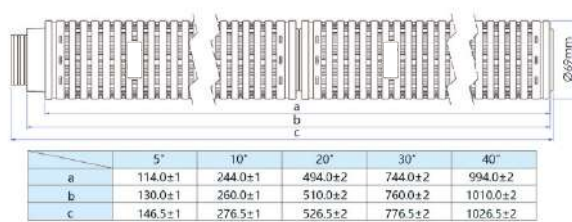
#### 213/ Flat

#### Standard



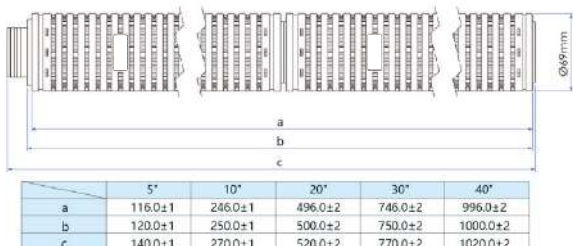
#### 222 Extended/ Flat

#### Standard



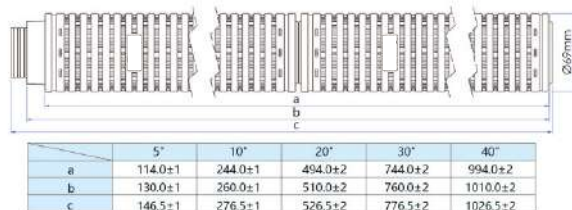
#### 222/ Flat

#### Standard



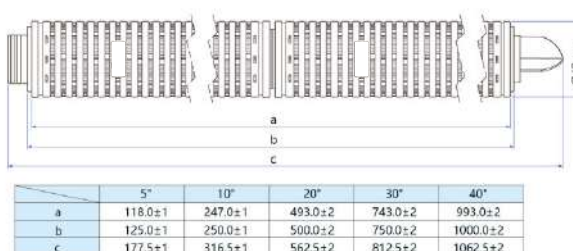
#### 222 Extended/ Flat

#### SS Reinforced



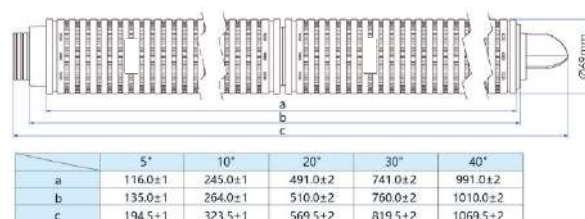
#### 222/ Fin

#### Standard



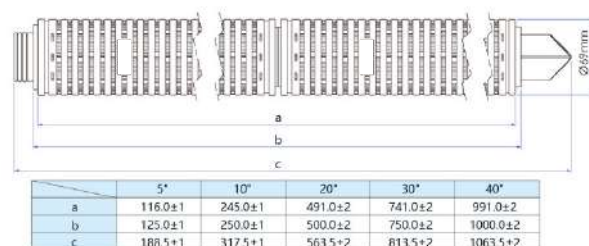
#### 222 Extended/ Fin

#### Standard



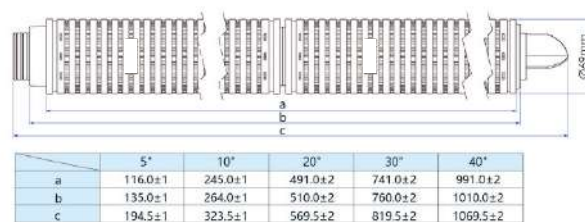
#### 222/ Spear Fin

#### Standard



#### 222 Extended/ Fin

#### SS Reinforced



# CARTFLOW DIMENSIONS

## Endcap

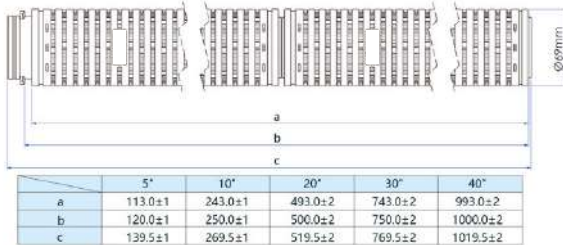
## Connection support

## Endcap

## Connection support

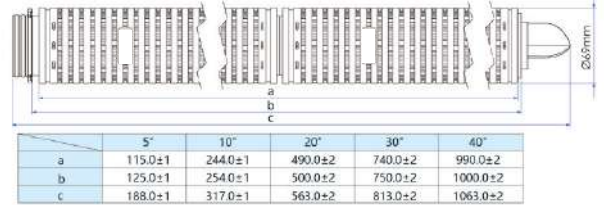
### 226/ Flat

### Standard



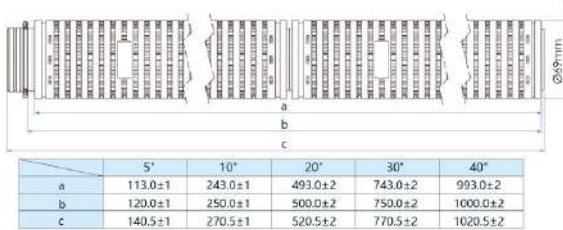
### 226/ Fin

### PSU Reinforced



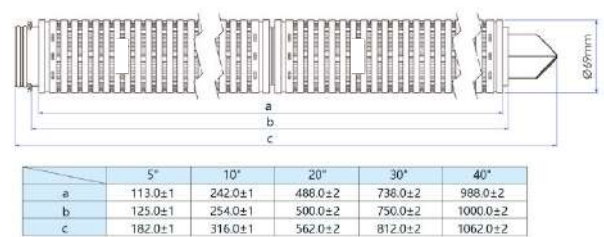
### 226/ Flat

### SS Reinforced



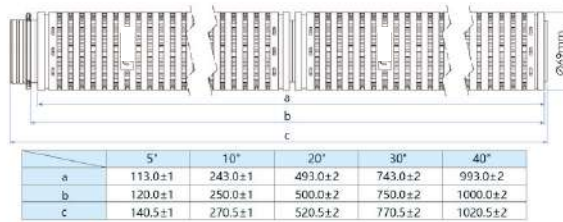
### 226/ Spear Fin

### Standard



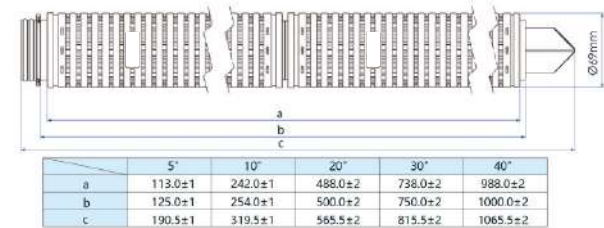
### 226/ Flat

### PSU Reinforced



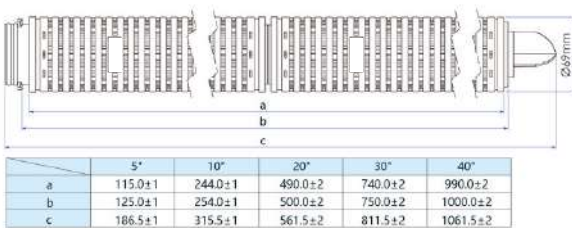
### 226/ Spear Fin

### SS Reinforced



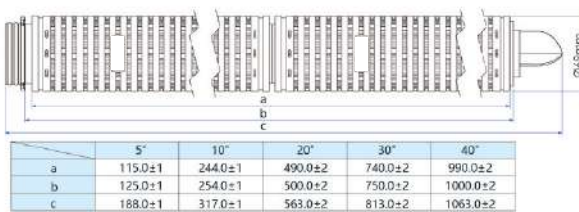
### 226/ Fin

### Standard



### 226/ Fin

### SS Reinforced



# CARTFLOW DIMENSIONS

## Pleated cartridge media: PP

### Endcap

### Connection support

### Endcap

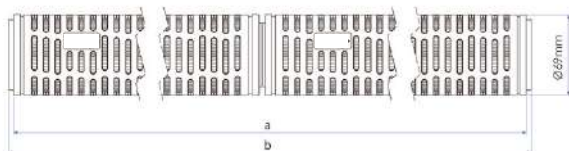
### Connection support

#### DOE

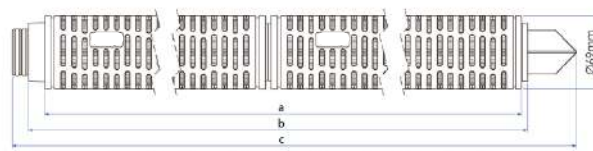
#### Standard

#### 222/Spear Fin

#### SS Reinforced



	5"	10"	20"	30"	40"
a	117.0±1	242.0±1	492.0±2	742.0±2	992.0±2
b	125.0±1	250.0±1	500.0±2	750.0±2	1000.0±2



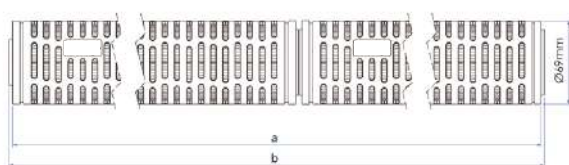
	5"	10"	20"	30"	40"
a	114.0±1	239.0±1	489.0±2	739.0±2	989.0±2
b	135.0±1	260.0±1	510.0±2	760.0±2	1010.0±2
c	196.0±1	321.0±1	571.0±2	821.0±2	1071.0±2

#### 213/ Flat

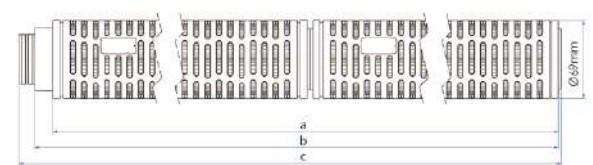
#### Standard

#### 222 Extended/ Flat

#### Standard



	5"	10"	20"	30"	40"
a	115.0±1	245.0±1	495.0±2	745.0±2	995.0±2
b	120.0±1	250.0±1	500.0±2	750.0±2	1000.0±2



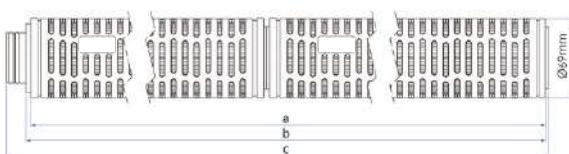
	5"	10"	20"	30"	40"
a	114.0±1	244.0±1	494.0±2	744.0±2	994.0±2
b	130.0±1	260.0±1	510.0±2	760.0±2	1010.0±2
c	146.5±1	276.5±1	526.5±2	776.5±2	1026.5±2

#### 222/ Flat

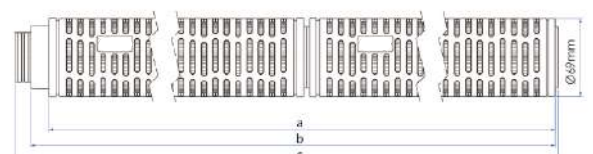
#### Standard

#### 222 Extended/ Flat

#### SS Reinforced



	5"	10"	20"	30"	40"
a	116.0±1	246.0±1	496.0±2	746.0±2	996.0±2
b	120.0±1	250.0±1	500.0±2	750.0±2	1000.0±2
c	110.0±1	270.0±1	520.0±2	770.0±2	1020.0±2



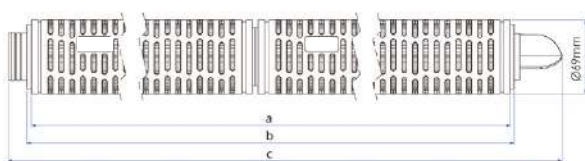
	5"	10"	20"	30"	40"
a	114.0±1	244.0±1	494.0±2	744.0±2	994.0±2
b	130.0±1	260.0±1	510.0±2	760.0±2	1010.0±2
c	146.5±1	276.5±1	526.5±2	776.5±2	1026.5±2

#### 222/ Fin

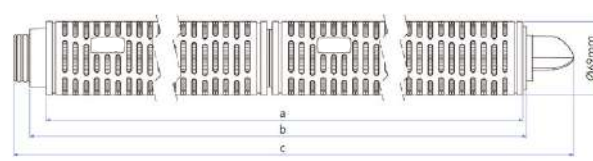
#### Standard

#### 222 Extended/ Fin

#### Standard



	5"	10"	20"	30"	40"
a	118.0±1	243.0±1	493.0±2	743.0±2	993.0±2
b	125.0±1	250.0±1	500.0±2	750.0±2	1000.0±2
c	187.5±1	312.5±1	562.5±2	812.5±2	1062.5±2



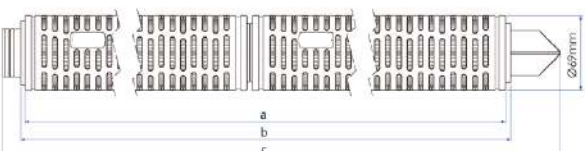
	5"	10"	20"	30"	40"
a	117.0±1	242.0±1	492.0±2	742.0±2	992.0±2
b	135.0±1	260.0±1	510.0±2	760.0±2	1010.0±2
c	194.5±1	319.5±1	569.5±2	819.5±2	1069.5±2

#### 222/ Spear Fin

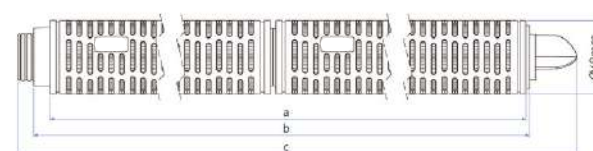
#### Standard

#### 222 Extended/ Fin

#### SS Reinforced



	5"	10"	20"	30"	40"
a	116.0±1	241.0±1	491.0±2	741.0±2	991.0±2
b	125.0±1	250.0±1	500.0±2	750.0±2	1000.0±2
c	188.5±1	313.5±1	563.5±2	813.5±2	1063.5±2



	5"	10"	20"	30"	40"
a	117.0±1	242.0±1	492.0±2	742.0±2	992.0±2
b	135.0±1	260.0±1	510.0±2	760.0±2	1010.0±2
c	194.5±1	319.5±1	569.5±2	819.5±2	1069.5±2

# CARTFLOW DIMENSIONS

## Endcap

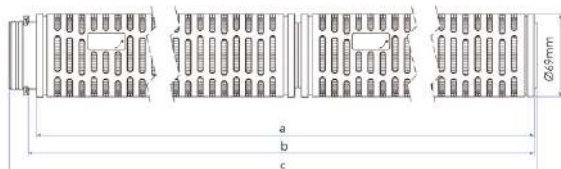
## Connection support

## Endcap

## Connection support

### 226/ Flat

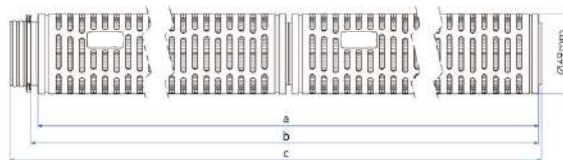
### Standard



	5"	10"	20"	30"	40"
a	113.0±1	243.0±1	493.0±2	743.0±2	993.0±2
b	120.0±1	250.0±1	500.0±2	750.0±2	1000.0±2
c	138.5±1	268.5±1	518.5±2	768.5±2	1018.5±2

### 226/ Fin

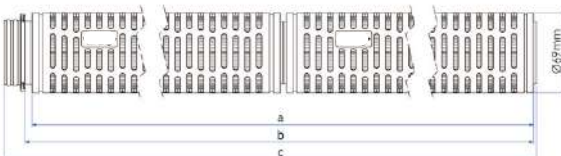
### PSU Reinforced



	5"	10"	20"	30"	40"
a	113.0±1	243.0±1	493.0±2	743.0±2	993.0±2
b	120.0±1	250.0±1	500.0±2	750.0±2	1000.0±2
c	140.5±1	270.5±1	520.5±2	770.5±2	1020.5±2

### 226/ Flat

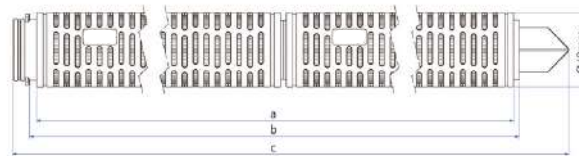
### SS Reinforced



	5"	10"	20"	30"	40"
a	113.0±1	243.0±1	493.0±2	743.0±2	993.0±2
b	120.0±1	250.0±1	500.0±2	750.0±2	1000.0±2
c	140.5±1	270.5±1	520.5±2	770.5±2	1020.5±2

### 226/ Spear Fin

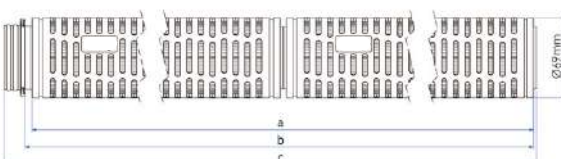
### Standard



	5"	10"	20"	30"	40"
a	113.0±1	238.0±1	488.0±2	738.0±2	988.0±2
b	125.0±1	250.0±1	500.0±2	750.0±2	1000.0±2
c	187.0±1	312.0±1	562.0±2	812.0±2	1062.0±2

### 226/ Flat

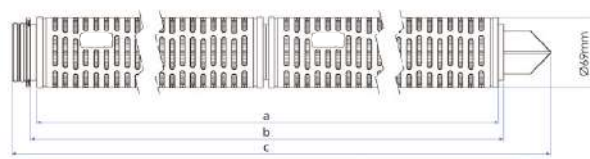
### PSU Reinforced



	5"	10"	20"	30"	40"
a	113.0±1	243.0±1	493.0±2	743.0±2	993.0±2
b	120.0±1	250.0±1	500.0±2	750.0±2	1000.0±2
c	140.5±1	270.5±1	520.5±2	770.5±2	1020.5±2

### 226/ Spear Fin

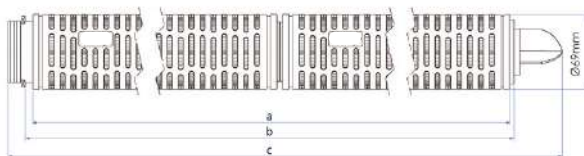
### SS Reinforced



	5"	10"	20"	30"	40"
a	113.0±1	238.0±1	488.0±2	738.0±2	988.0±2
b	125.0±1	250.0±1	500.0±2	750.0±2	1000.0±2
c	189.0±1	318.0±1	564.0±2	814.0±2	1064.0±2

### 226/ Fin

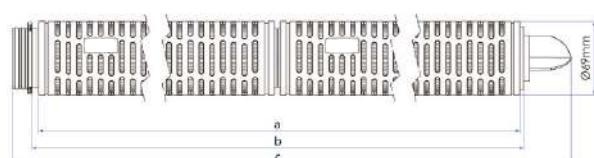
### Standard



	5"	10"	20"	30"	40"
a	115.0±1	240.0±1	490.0±2	740.0±2	990.0±2
b	125.0±1	250.0±1	500.0±2	750.0±2	1000.0±2
c	185.5±1	310.5±1	560.5±2	810.5±2	1060.5±2

### 226/ Fin

### SS Reinforced



	5"	10"	20"	30"	40"
a	115.0±1	240.0±1	490.0±2	740.0±2	990.0±2
b	125.0±1	250.0±1	500.0±2	750.0±2	1000.0±2
c	188.0±1	313.0±1	563.0±2	813.0±2	1063.0±2

# HOUSFLOW



# CHDA Series - Sanitary Single-Round Liquid Filter Housings



Sanitary Single-Round Liquid Filter Housings are designed to meet requirements for sanitary construction with smooth crevice-free welding and TC-type sanitary connections. Easy to clean and disassemble. Suitable for low flow rate applications with low-to-medium pressure conditions. This design is widely used in pharmaceutical, bio-technology, and food/beverage industries.

## Features

- Ultra-high degree of polishing: Internal:  $Ra \leq 0.3\mu m$ ; External:  $Ra \leq 0.4\mu m$
- Meets GMP standards with smooth crevice-free welding and sanitary design. Excellent cleanability & liquid drainage.
- Vent/Drain Port: The threaded sleeve is separated from stepped hose barb, so the connection tube will not rotate when venting or draining.
- A strengthened closure clamp allows a maximum operating pressure of 1.0MPa.
- With a small footprint and ease of disassembly, this series is ideally suited for use in the manufacture of pharmaceutical and food/beverage product.
- The heavy-duty housing legs have strengthened threads for stability and ruggedness. Adjustable nuts on the legs allow height adjustment for installation convenience.
- Suitable for Suitable for Clean-in-Place and Steam-in Place processes.
- Compatible with cartridge connection for 222 and 226.
- Optional N6 drain port (sampling port).

## Surface Finish

Finish Processing Options:	Electropolished Mech. Polished
Polish Quality:	Internal: $Ra \leq 0.3\mu m$ External: $Ra \leq 0.4\mu m$

## Materials

Shell Options:	304 or 316L Stainless Steel
Drain/Vent Port:	304, 316L
Tri-Clamp:	304
Stabilizer Blade:	304
Seal Materials:	Silicone, FKM, EPDM

## Applications

- Pharmaceuticals: filtration of injectables, LVPs, water for injection, antibiotics, and other biological products
- Food and beverage: filtration of beer, wine, distilled spirits, juices, syrups, and drinking water
- Petrochemical industry: filtration of oilfield water, organic solvents, acids, and alkaline fluids
- Microelectronics: pre-filtration of high-purity water

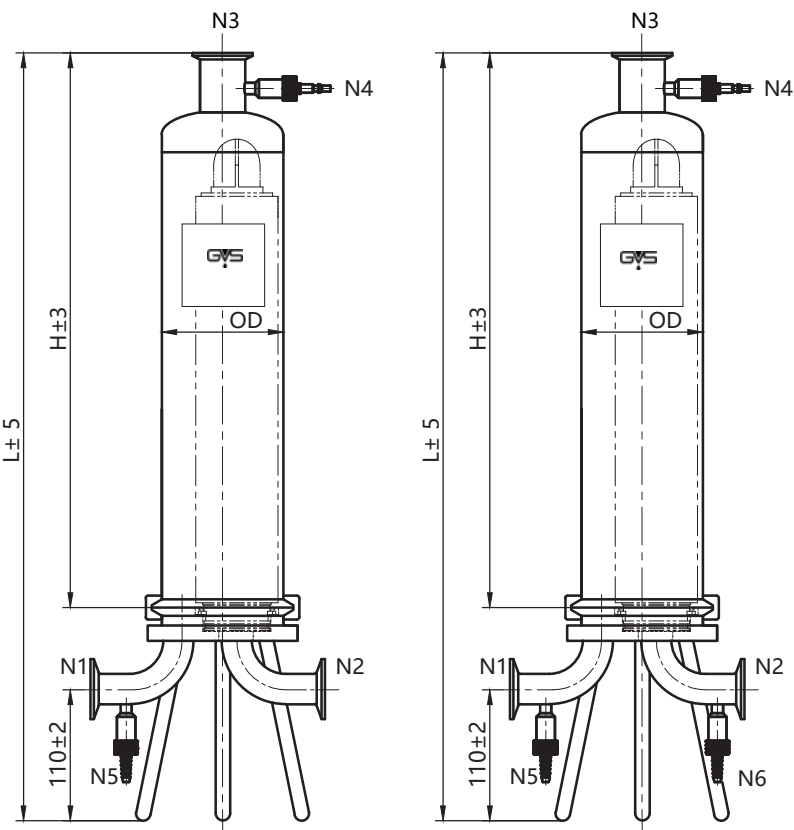
## Operating Conditions

Max. Operating Pressure:	1.0MPa (150psi)
Max. Operating Temperature:	140°C (284°F)

## Connection

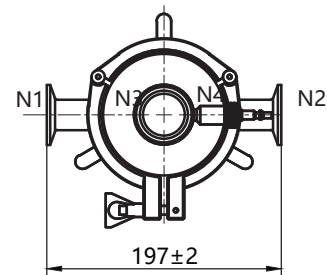
Shell Connection:	Tri-clamp
Inlet & Outlet (N1, N2):	1" Tri-clamp (T25)
Vent Port (N4):	Sanitary hose barb valve fit with integrity test interface
Drain Port (N5, N6):	Sanitary hose barb valve for 8mm i.D. tubing
Pressure Gauge Port (N3):	1.5" Tri-clamp

# Dimensions (mm)



Type A (N6-free)

Type B



Housing Cartridge height (mm) length	H	L
5"	240	420
10"	370	550
20"	620	800
30"	870	1,050
40"	1,120	1,300

Eg.=>CHDAAQJ0105T25SEEY

ORDERING INFORMATION									
Series	Connection	Shell Material	Qty.	Length	Inlet&Outlet	Seal Material	Surface Finish (internal)	Surface Finish (external)	Design Pressure
CHDAA=CHDA Series Filter	Q = 226 / Fin	J=304	01=1	05 = 5"	T25=TCDN25	S=Silicone	E=Electropolished	E=Electropolished	Y=1.0Mpa
Housigs(N6-free)	P = 222 / Fin	K=316L		10 = 10"	B25=ASME-BPE	E=EPDM	M=Mech. Polished	M=Mech. Polished	
CHDAB=CHDA Series Filter	T = 226 / Flat			20 = 20"	DN25	V=FKM			
Housings	M = 222 / Flat			30 = 30"	F25=Flange DN25				
				40 = 40"					

# CHDB Series - Sanitary Multi-Round Liquid Filter Housings



Sanitary Multi-Round Liquid Filter Housings are designed to meet requirements for sanitary construction with smooth crevice-free welding and TC-type sanitary connections. Easy to clean and disassemble. Suitable for higher flow rate applications with low-to-medium pressure conditions. This design is widely used in pharmaceutical, bio-technology, and food/beverage industries. The internal surface can be finely polished down to  $Ra \leq 0.3\mu m$ .

## Features

- Ultra-high degree of polishing: Internal:  $Ra \leq 0.3\mu m$ ; External:  $Ra \leq 0.4\mu m$
- Meets GMP standards with smooth crevice-free welding and sanitary design. Excellent cleanability & liquid drainage.
- Vent port feature: Tri-clamp connection for convenience.
- A strengthened closure clamp allows a maximum operating pressure of 1.0MPa.
- The faceplate can be made detachable for full-surface cleaning.
- Suitable for CIP and SIP processes.
- Compatible with cartridge connection for 222 and 226.
- Optional N6 drain port (sampling port).

## Surface Finish

Finish Processing Options:	Electropolished Mech. Polished
Polish Quality:	Internal: $Ra \leq 0.3\mu m$ External: $Ra \leq 0.4\mu m$

## Operating Conditions

Max. Operating Pressure:	1.0MPa (150psi)
Max. Operating Temperature:	140°C (284°F)

## Materials

Shell Options:	304 or 316L Stainless Steel
Drain/Vent Port:	304 or 316L
Tri-Clamp:	304
Stabilizer Blade:	304
Seal Materials:	Silicone, FKM, EPDM

## Connection

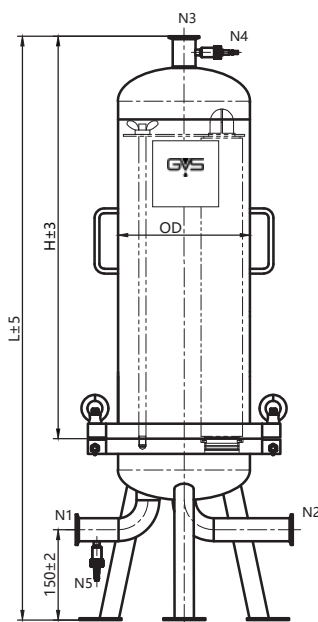
Shell Connection:	Flange eyebolt
Inlet & Outlet (N1, N2):	1.5", 2", 2.5" Tri-clamp
Vent Port(N4):	Sanitary hose barb valve fit with integrity test interface
Drain Port (N5, N6):	Sanitary hose barb valve for 8mm i.D. tubing
Pressure Gauge Port(N3):	1.5" Tri-clamp

## Applications

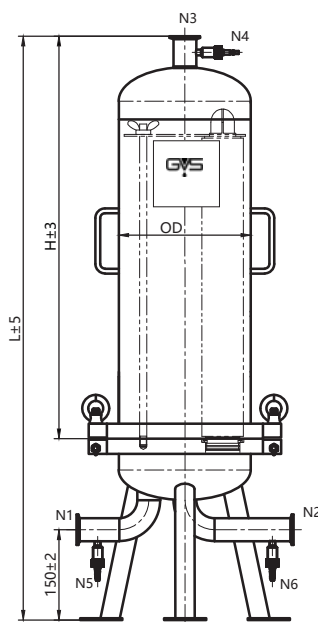
- Pharmaceuticals: filtration of injectables, LVPs, water for injection, antibiotics, and other biological products.
- Food and beverage: filtration of beer, wine, distilled spirits, juices, syrups, and drinking water.
- Petrochemical industry: filtration of oilfield water, organic solvents, acids, and alkaline fluids.
- Microelectronics: pre-filtration of high-purity water

## Dimensions (mm)

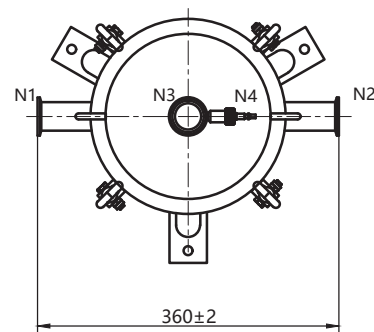
### 3-Round



Type A (N6-free)

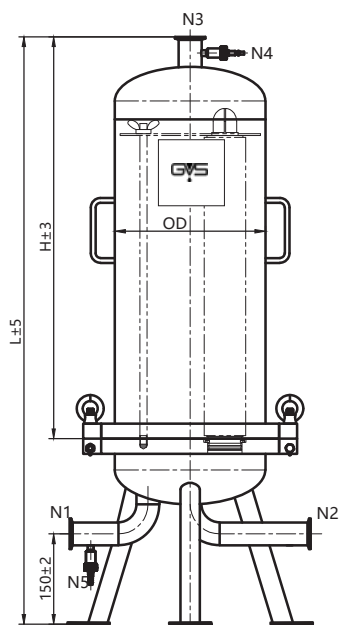


Type B

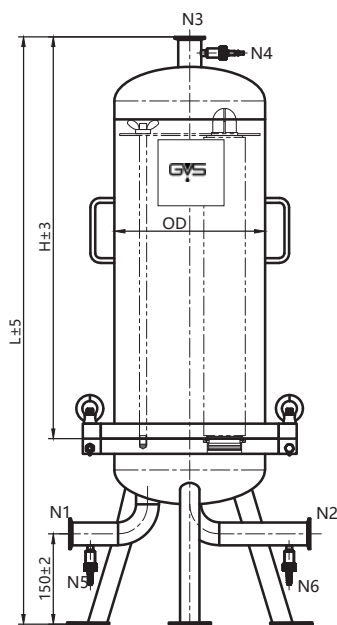


Housing Cartridge height(mm) length	H	L
10"	418	720
20"	668	970
30"	918	1,220
40"	1,168	1,470

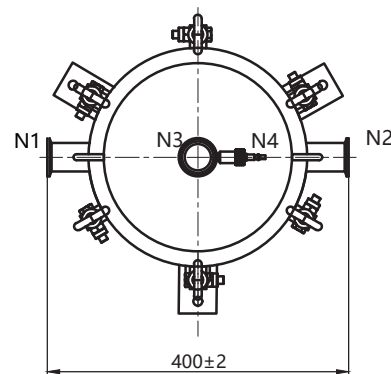
### 5-Round



Type A (N6-free)

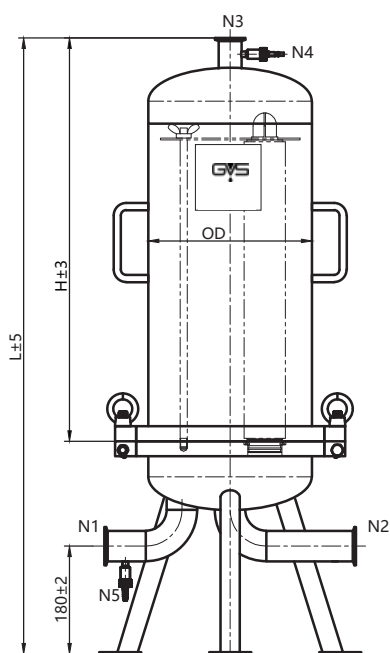


Type B

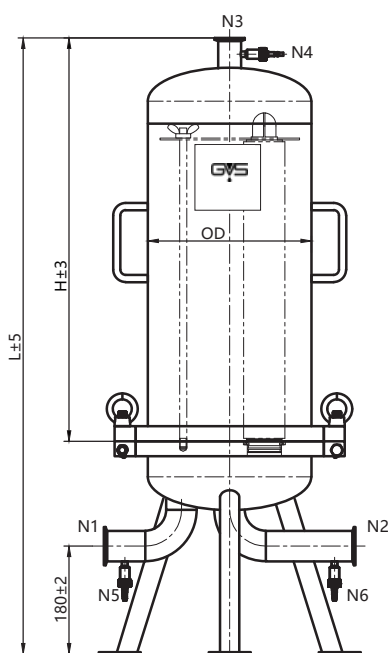


Housing Cartridge height(mm) length	H	L
10"	417	725
20"	667	975
30"	917	1,225
40"	1,167	1,475

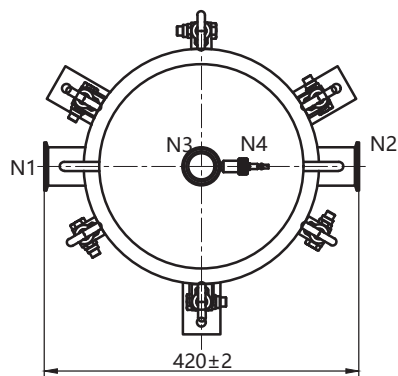
## 7-Round



Type A (N6-free)

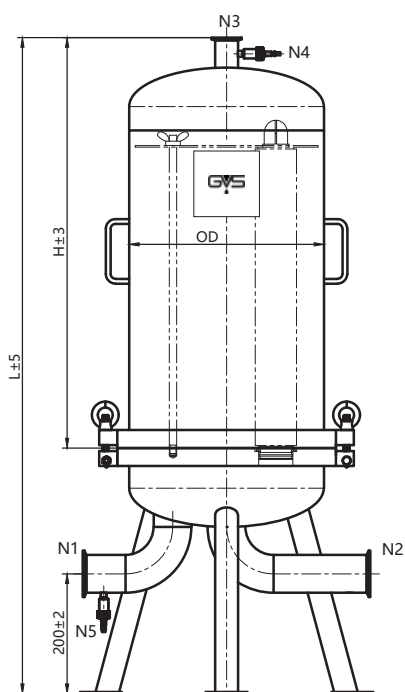


Type B

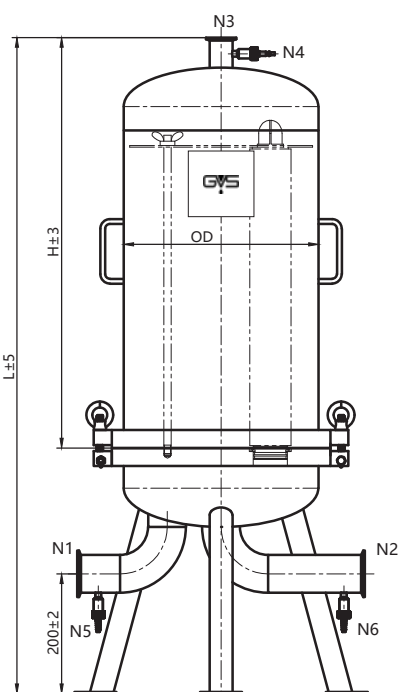


Housing Cartridge height (mm) length	H	L
10"	423	778
20"	673	1,028
30"	923	1,278
40"	1,173	1,528

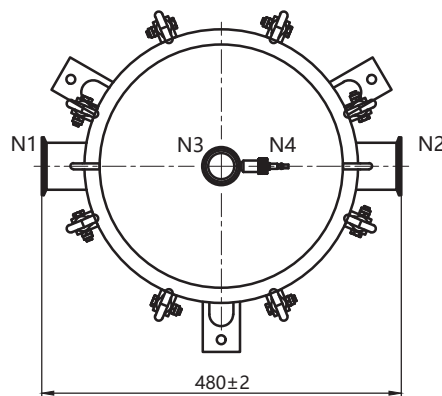
## 9-Round



Type A (N6-free)

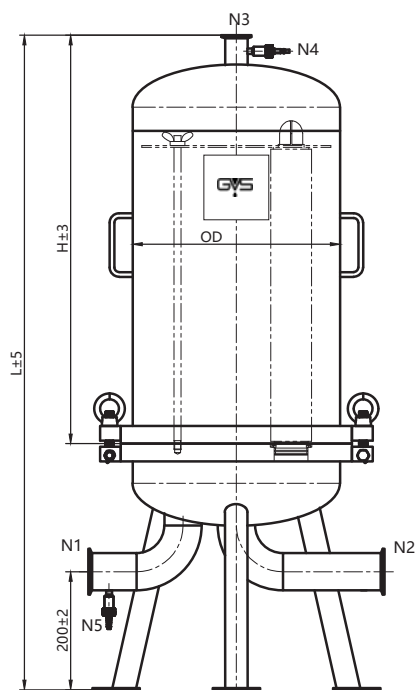


Type B

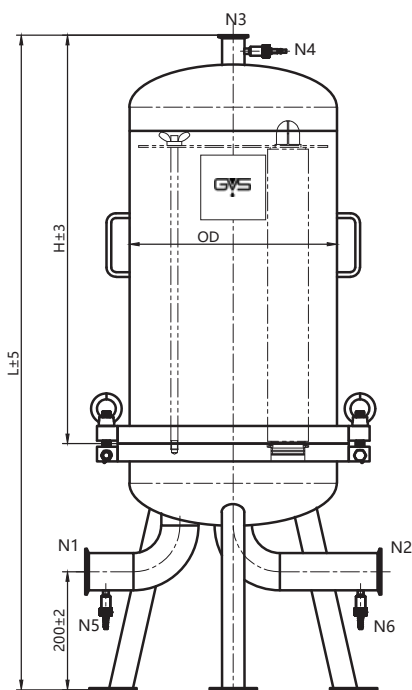


Housing Cartridge height (mm) length	H	L
10"	436	846
20"	686	1,096
30"	936	1,346
40"	1,186	1,596

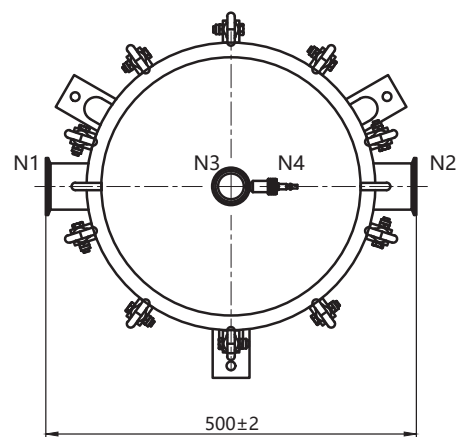
## 12-Round



**Type A (N6-free)**



**Type B**



Housing Cartridge Height(mm) length	H	L
10"	442	858
20"	692	1,108
30"	942	1,358
40"	1,192	1,608

**Eg.=>CHDBAQJ0310T38SEFY**

ORDERING INFORMATION									
Series	Connection	Shell Material	Qty.	Length	Inlet&Outlet	Seal Material	Surface Finish (internal)	Surface Finish (external)	Design Pressure
CHDBA=B Series Filter	Q = 226 / Fin	J=304	03 = 3	10 = 10"	T38=TC 1.5"(Only for 3	S=Silicone	E=Electropolished	E=Electropolished	Y=1.0Mpa
Housings(N6-free)	P = 222 / Fin	K=316L	05= 5	20 = 20"	cartridges)	E=EPDM	M=Mech. Polished	M=Mech. Polished	
CHDBB=B Series Filter	T = 226 / Flat		07 = 7	30 = 30"	T50=TC 2"	V=FKM			
Housings	M = 222 / Flat		09 = 9	40 = 40"	( for 5, 7 cartridges)				
			12 = 12		T63=TC 2.5"( for 9, 12 cartridges)				

# CHDC Series - Sanitary In-Line Filter Housings



Sanitary In-Line Filter Housings are the ideal choice when the application calls for a compact and cost-effective design. Suitable for filtration of liquids and gases. Uses a convenient clamp body closure and drain/vent ports.

## Features

- Ultra-high degree of polishing: Internal:  $Ra \leq 0.3\mu m$ ; External:  $Ra \leq 0.4\mu m$
- Meets GMP standards with smooth crevice-free welding and sanitary design.
- Excellent cleanability & liquid drainage.
- Vent/Drain Valve: the threaded sleeve is separated from stepped hose barb, so the connection tube will not rotate when venting or draining.
- A strengthened closure clamp allows a maximum operating pressure of 1.0MPa.
- Compatible with cartridge connection for 222 and 226.

## Surface Finish

Finish Processing Options:	Electropolished Mech. Polished
Polish Quality:	Internal: $Ra \leq 0.3\mu m$ External: $Ra \leq 0.4\mu m$

## Operating Conditions

Max. Operating Pressure:	1.0MPa (150psi)
Max. Operating Temperature:	140°C (284°F)

## Materials

Shell Options:	304, 316L Stainless Steel
Drain/Vent Port:	304, 316L
Tri-Clamp:	304
Seal Materials:	Silicone, FKM, EPDM

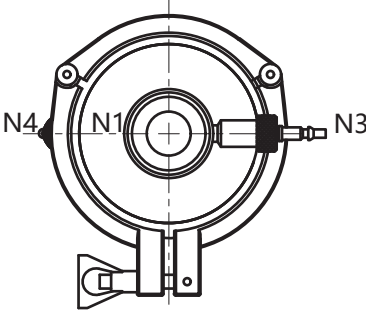
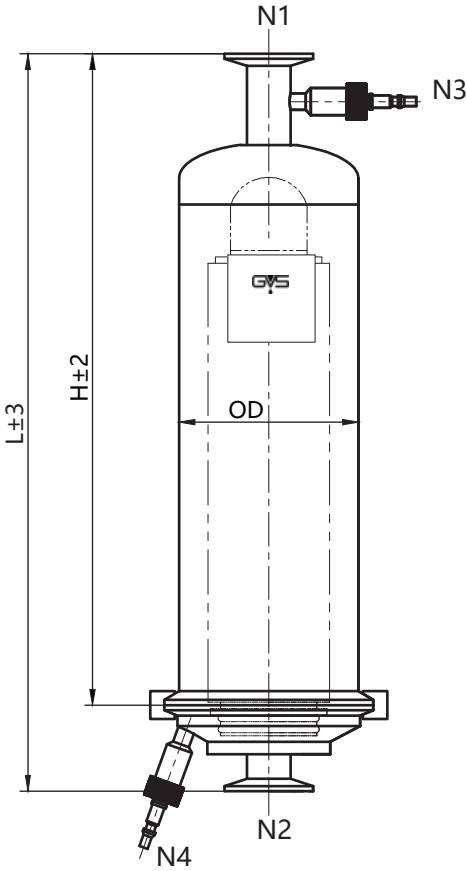
## Connection

Shell Connection:	Tri-clamp
Inlet & Outlet (N1, N2):	1" Tri-clamp (T25)
Vent Port (N3):	Sanitary hose barb valve fit with integrity test interface
Drain Port (N4):	Sanitary hose barb valve for 8mm i.D. tubing

## Applications

- Particle filtration of pipeline liquids.
- In-line gas filtration or as a respirator.
- Filtration of beverages, edible oils, etc.

# Dimensions (mm)



Housing Cartridge height (mm) length	H	L
5"	238	288
10"	368	418
20"	618	668
30"	868	918
40"	1,118	1,168

Eg.=>CHDCQJ0105T25SEEY

ORDERING INFORMATION									
Series	Connection	Shell Material	Qty.	Length	Inlet&Outlet	Seal Material	Surface Finish (internal)	Surface Finish (external)	Design Pressure
CHDC=Sanitary In-Line	Q = 226 / Fin	J=304	01=1	05 = 5"	T25=TCDN25	S=Silicone	E=Electropolished	E=Electropolished	Y=1.0Mpa
Filter Housing	P = 222 / Fin	K=316L		10 = 10"	B25=ASME-BPE	E=EPDM	M=Mech. Polished	M=Mech. Polished	
	T = 226 / Flat			20 = 20"	DN25F25=Flange				
	M = 222 / Flat			30 = 30"	DN25 V=FKM				
				40 = 40"					

# CHDD Series - Sanitary Gas Filter Housings



Sanitary Gas Filter Housings are suitable for removal of particulate from gas streams. When used with appropriate sterilizing-grade filter cartridges, the combination can be used in high-purity sterile gas filtration.

## Features

- Ultra-fine polishing: Internal:  $Ra \leq 0.3\mu m$ ; External:  $Ra \leq 0.4\mu m$
- Accepts 226-style cartridges with locking tabs to assure safe and secure sealing performance.
- The Tri-Clamp body connection allows easy servicing and cartridge change-out.
- Compatible with cartridge connection for 222 and 226, the housing is applied in high-purity, high-temperature, aseptic, fermentation, etc.

## Surface Finish

Finish Processing Options: Electropolished  
Mech. Polished

Polish Quality: Internal:  $Ra \leq 0.3\mu m$   
External:  $Ra \leq 0.4\mu m$

## Operating Conditions

Max. Operating Pressure: 0.6MPa (90psi, Tri-clamp)  
Max. Operating Temperature: 1.0MPa (150psi, Flange)  
140°C (284°F)

## Materials

Shell Options: 304 or 316L Stainless Steel

Drain Port: 304 or 316L

Tri-clamp: 304

Stabilizer Blade: 304

Seal Materials: Silicone, FKM, EPDM

## Connection

Shell Connection: Tri-clamp or Flange

Inlet & Outlet (N1, N2): 1", 1.5" Tri-clamp or DN25/  
DN50 Flange (PL-RF, HG/  
T20592-2009 PN16)

Pressure Gauge Port (N3): M14\*1.5 Thread FNP-

Drain Port (N4): T1/4" Thread

## Applications

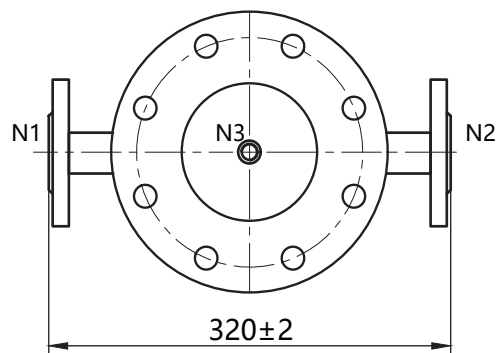
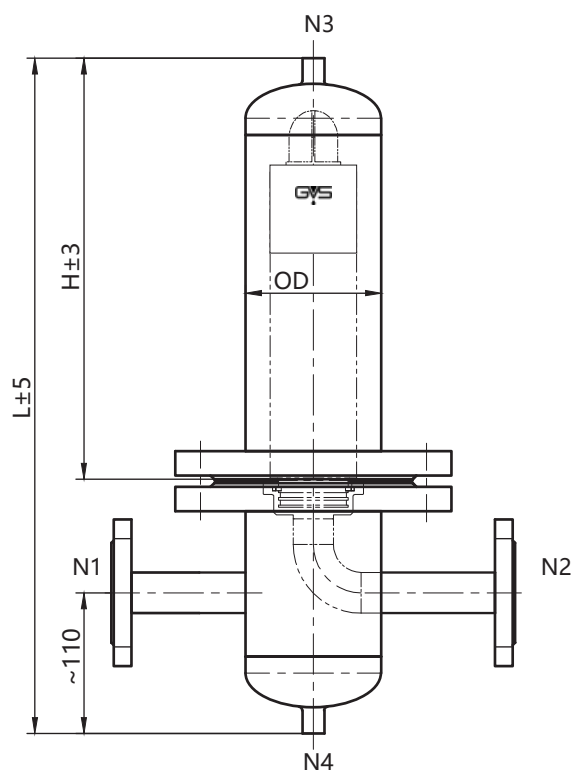
- Pharmaceuticals: gas sterilization and air/gas filtration in the production of biological products
- Food and beverage: gas sterilization and air/gas filtration in the production of food, beverages, and fermented products
- Chemical industry: filtration of industrial gases such as coal gas, hydrogen, nitrogen, and natural gas, among others
- Laboratory: environmental air filtration

Eg. => CHDDQJ0110T25SEEY

ORDERING INFORMATION									
Series	Connection	Shell Material	Qty.	Length	Inlet&Outlet	Seal Material	Surface Finish (internal)	Surface Finish (external)	Design Pressure
CHDD=Sanitary	Q = 226 / Fin	J=304	01=1	05= 5"	T25=TC 1"	S=Silicone	E=Electropolished	E=Electropolished	Y=1.0Mpa
Gas Filter Housing	P = 222 / Fin	K=316L		10 = 10"	T38=TC1.5"	E=EPDM	M=Mech. Polished	M=Mech. Polished	
	T = 226 / Flat			20 = 20"	F25=Flange DN25	V=FKM			
	M = 222 / Flat			30 = 30"	F50=Flange DN50				
				40 = 40"					

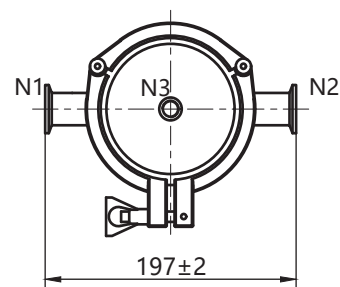
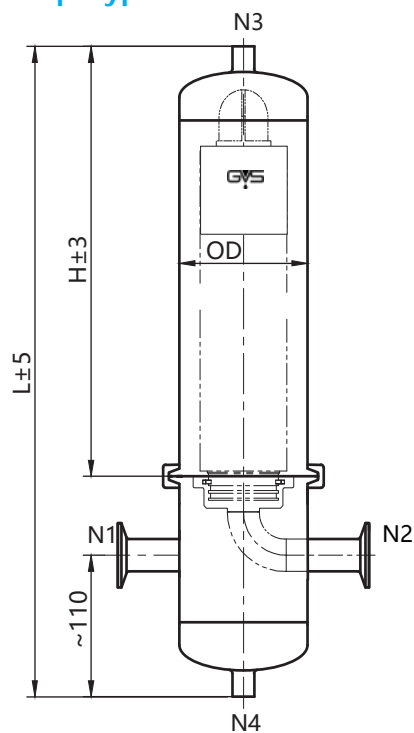
# Dimensions (mm)

## Flange Type



Housing Cartridge height(mm) length	H	L
5"	210	410
10"	340	540
20"	590	790
30"	840	1,040
40"	1,090	1,290

## Tri-clamp Type



Housing Cartridge height(mm) length	H	L
5"	208	380
10"	338	510
20"	588	760
30"	838	1,010
40"	1,088	1,260

# CHDE Series - Sanitary Vent Filter Housings



Sanitary Vent Filter Housings are comply with sanitary vessel design requirements. Suitable for gas sterilization filtration in the pharmaceutical and food industries. The top elbow is intended to prevent large particles and debris from entering the housing.

## Features

- Ultra-fine polishing: Internal:  $Ra \leq 0.3\mu m$ , External:  $Ra \leq 0.4\mu m$
- Complies with GMP standards.
- Excellent cleanability.
- Design prevents accumulation of liquid.
- Top elbow prevents external particles and debris from entering the housing
- The vent filter housings are available in single-opening A and top elbow B model, compatible with cartridge connection for 222 and 226.

## Surface Finish

Finish Processing Options: Electropolished  
Mech. Polished

Polish Quality: Internal:  $Ra \leq 0.3\mu m$   
External:  $Ra \leq 0.4\mu m$

## Operating Conditions

Max. Operating Pressure: 1.0MPa(10bar/150psi)  
Max.Operating Temperature: 140°C(284°F)

## Materials

Shell Options: 304 or 316L Stainless Steel

Clamp: 304 Stainless Steel

Seal Materials: Silicone, FKM, EPDM

## Connection

Shell Connection: Clamp

Outlet&Inlet (N1, N2): Tri-clamp 1"(T25)

## Applications

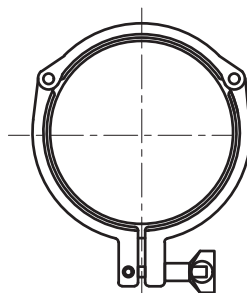
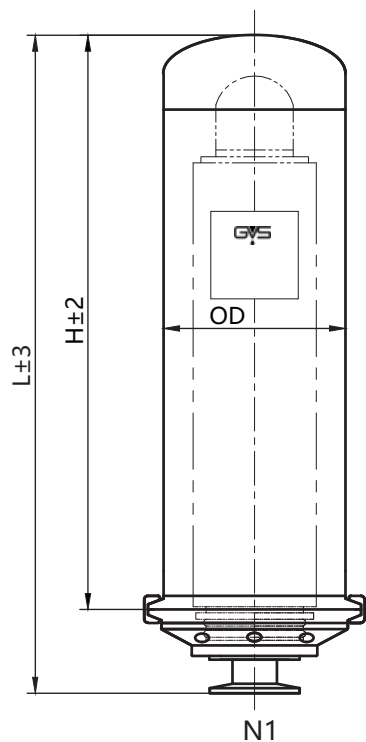
- Allows sterile filtration of vented gas flow in the production and storage of:
  - Pharmaceutical and bio-technology products
  - Fermentation process products
  - Food, beverages, potable water

Eg.=>CHDEAQJ0110T25SEFY

ORDERING INFORMATION									
Series	Connection	Shell Material	Qty.	Length	Inlet&Outlet	Seal Material	Surface Finish (internal)	Surface Finish (external)	Design Pressure
CHDEA = Vent Filter Housing Type A	Q = 226 / Fin	J=304	01=1	05 = 5"	T25=TCDN25	S=Silicone	E=Electropolished	E=Electropolished	Y=1.0Mpa
CHDEB = Vent Filter Housing Type B	P = 222 / Fin	K=316L		10 = 10"	B25=ASME-BPEDN25	E=EPDM	M=Mech. Polished	M=Mech. Polished	
	T = 226 / Flat			20 = 20"	F25=Flange DN25	V=FKM			
	M = 222 / Flat			30 = 30"					
				40 = 40"					

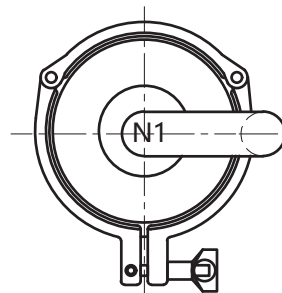
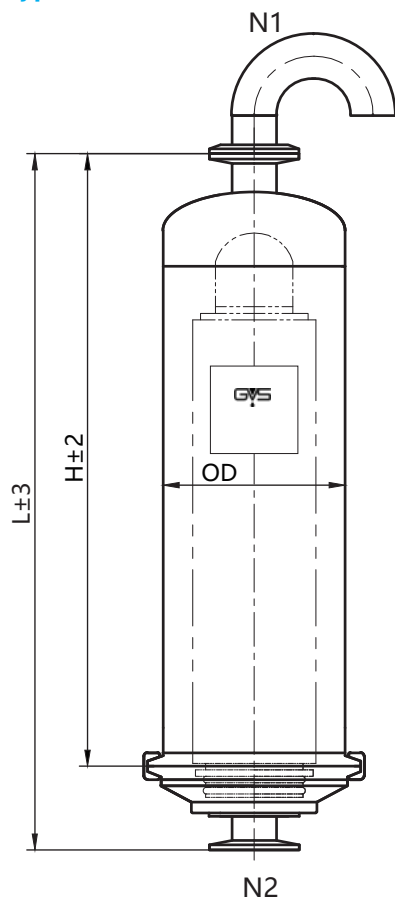
# Dimensions (mm)

## Type A



Housing Cartridge height(mm) length	H	L
5"	210	260
10"	340	390
20"	590	640
30"	840	890
40"	1,090	1,140

## Type B



Housing Cartridge height(mm) length	H	L
5"	188	238
10"	318	368
20"	568	618
30"	818	868
40"	1,1068	1,118

# CHDH Series - Sanitary Depth-Stack Filter Housings



Sanitary Depth-Stack Filter Housings are a new type of depth-stack filter housing. Designed to meet requirements for sanitary construction with smooth crevice-free welding and TC-type sanitary connections. Easy to clean and disassemble. The co-linear inlet and outlet flow paths beneath the vessel shell serve to minimize liquid turbulence. Available for 8", 12" and 16" diameter cartridges up to four high modules to meet high flow rates requirements.

## Features

- Ultra-high degree of polishing: Internal:  $Ra \leq 0.3\mu m$ ; External:  $Ra \leq 0.4\mu m$
- Liquid turbulence is minimized with co-linear inlet-outlet porting beneath the housing shell.
- Specially designed drain valves can optionally be installed on the inlet and outlet ports for easy liquid drainage.
- Allows vertical stacking of up to four depth-stack cartridges and provides high flow rates at high retention efficiency.
- Segmented cartridge design makes it more convenient to replace depth stack cartridges and helps to reduce liquid loss.
- The housing is fitted with DOE and stack with support plates part or handle, 3 modules for 8" and 4 modules for 12" and 16".
- Optional N6 drain port (Sampling port).

## Surface Finish

Finish Processing Options:	Electropolished Mech. Polished
Polish Quality:	Internal: $Ra \leq 0.3\mu m$ External: $Ra \leq 0.4\mu m$

## Operating Conditions

Max. Operating Pressure:	1.0MPa (10bar150psi)
Max.Operating Temperature:	80°C(176°F)

## Materials

Shell Options:	304 or 316L Stainless Steel
Vent Port:	304 or 316L
Eyebolts:	304
Legs:	304
Seal Materials:	Silicone, FKM, EPDM

## Connection

Shell Connection: Inlet & Outlet (N1,N2):	Eyebolt Tri-clamp
Vent Port(N4):	Sanitary hose barb valve fit with integrity test interface
Drain Port (N5, N6):	Sanitary hose barb valve for 8mm i.D. tubing
Pressure Gauge (N3):	1.5" TC

## Applications

- Pharmaceuticals: filtration of injectables, LVPs, water for injection, and other biological products
- Food and beverage: filtration of beer, wine, and distilled spirits, juices, syrups, and edible oils
- Chemical industry: filtration of grease and dirt, sludge, and gelatinous materials

# Cartridge Sealing System

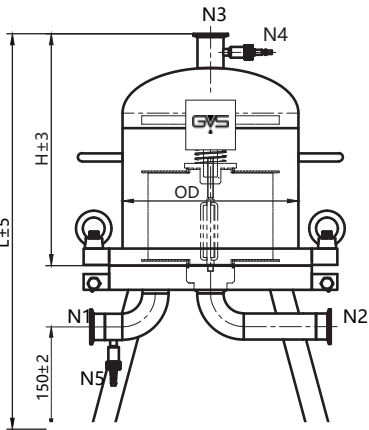
A spring-loaded sealing system provides optimal sealing compression to help prevent filter bypass even under the most arduous process conditions.



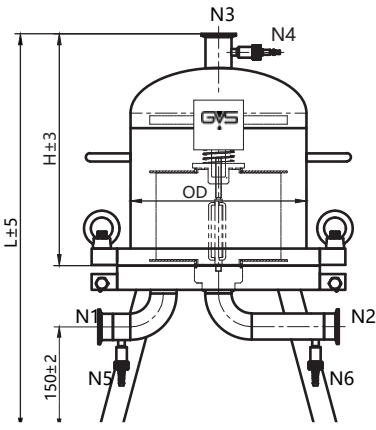
Cartflow

## Dimensions (mm)

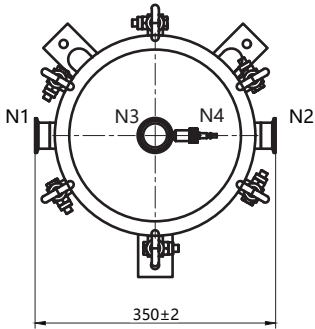
8"



Type A (N6-free)

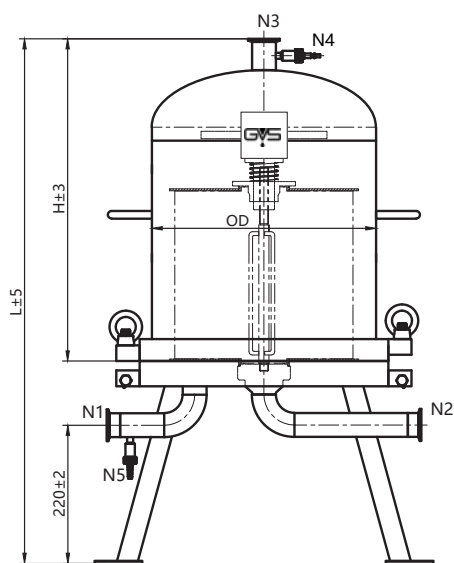


Type B

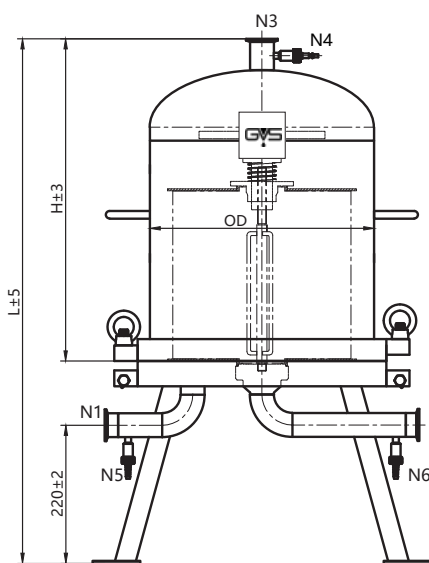


Housing Cartridge height(mm) length	H	L
8	337	572
16	477	712
24	617	852

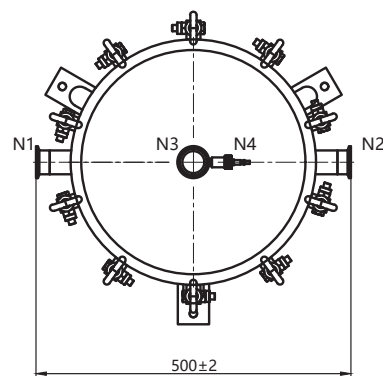
12"



Type A (N6-free)

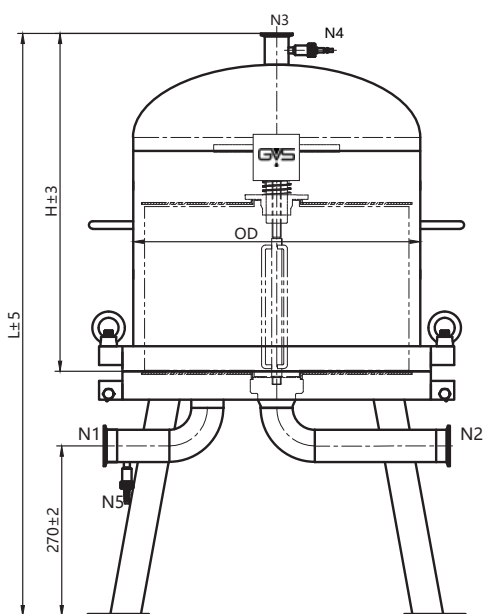


Type B

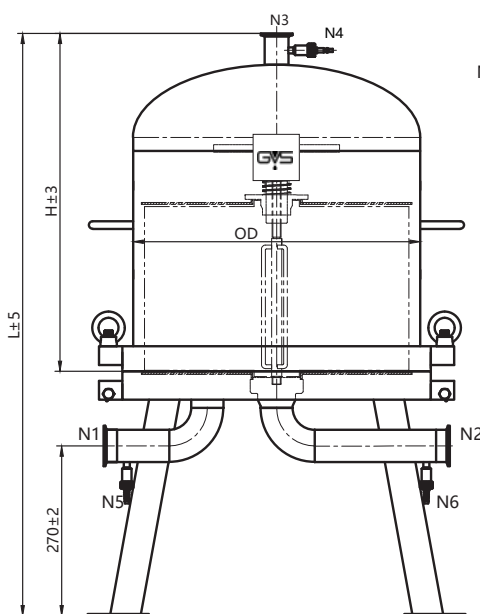


Housing Cartridge height(mm) length	H	L
16	512	825
32	792	1,105
48	1,072	1,385
64	1,352	1,665

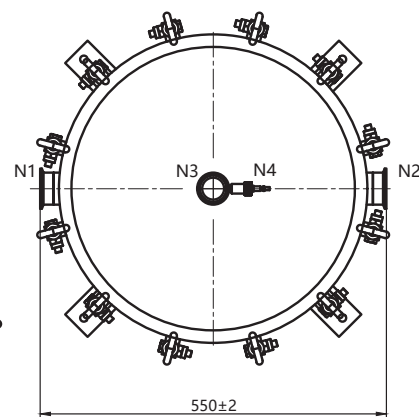
16"



Type A (N6-free)



Type B



Housing Cartridge height(mm) length	H	L
16	537	915
32	817	1,195
48	1,097	1,475
64	1,377	1,755

Eg.=>CHDHAFJ0801T38SEY

ORDERING INFORMATION								
Series	Connection	OD	Cells	Inlet&Outlet	Seal Material	Surface Finish (internal)	Surface Finish (external)	Design Pressure
CHDHAF= H Series Filter	J=304	08= 8"	01= 8(8")	T38=TC1.5"/ for 8",12"	S=Silicone	E=Electropolished	E=Electropolished	Y=1.0Mpa
Housings(N6-free)	K=316L	12 = 12"	05= 16	T50=TC2"/ for 16"	E=EPDM	M=Mech. Polished	M=Mech. Polished	
CHDHBF= H Series Filter		16 = 16"	07 = 24(8")		V=FKM			
Housings			10 = 32(12",16")					
			13 = 48(12",16")					
			15 = 64(12",16")					

# CHDM Series - High Flow Filter Housings



CHDM Series - High Flow vertical Filter Housings are designed to accommodate HF series High Flow filter cartridges intended for use primarily for higher fluid flow applications, especially in water treatment. Housings are available in a range of sizes accommodating from 1 to 5 cartridges in lengths of 40" . Constructed of high quality 304 or 316L stainless steel suitable for use in high temperatures, with tolerance to acids, alkalis, and organic chemicals. The vertical option minimizes the system's footprint. Customized configurations are available to suit customers' specific needs.

## Features

- Using quality stainless steel components to build all housings, ensures consistent quality and performance.
- Large cartridge size with expansive filtration area provides for high-volume liquid filtration at high retention efficiency with a low initial investment.
- Housings are manufactured with crevice-free internals, fine polishing inside to ensure surface smoothness. Preferable for potable water and food/beverage production

## Surface Finish

Finish Processing Options: Internal: Mech Polished / Passivated  
External: Mech Polished / Passivated / Abrasive Blasted

## Materials

Shell Options: 304 or 316L  
Vent Port: 304 or 316L  
Eyebolts: 304  
Legs: 304  
Seal Materials: Silicone, FKM, EPDM

## Operating Conditions

Max. Operating Pressure: 1.0MPa (150psi)  
Max. Operating Temperature: 80°C (176°F)

## Connection

Num	Name	Specification	Connection	Note
N1	Inlet	pl-rf	Flange	HG/T20592-2009 PN16
N2	Outlet	pl-rf	Flange	HG/T20592-2009 PN16
N3	Vent	FNPT1/4"	Thread	-
N4	Pressure Gauge Connection	M14*1.5	Thread	-
N5	Outlet	FNPT1/4"	Thread	-

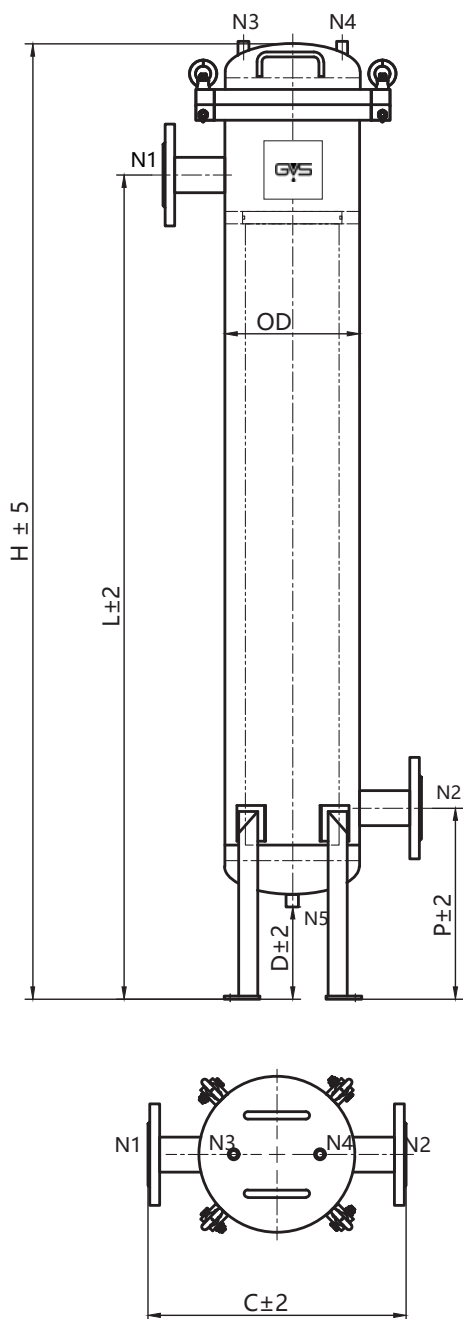
## Applications

- Pre-filtration of RO systems; Bottled water production
- Filtration of process water, condensate water, cooling water, waste water
- Chemical industry filtration of acids, alkaline liquids, organic solvents
- Energy industry condensate & cooling waters
- Food and beverage: filtration of drinks, beverages and drinking water

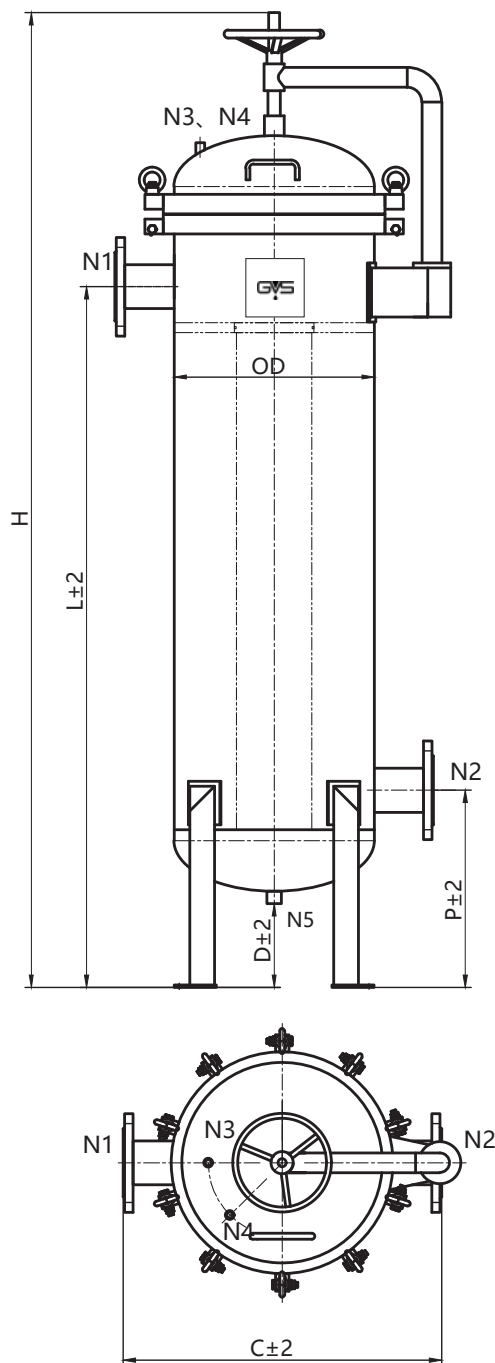
Eg.=>CHDMHJ0140F50SEEFY

ORDERING INFORMATION									
Series	Connection	Shell Material	Number Round	Number Round	Inlet&Outlet	Seal Material	Surface Finish (internal)	Surface Finish (external)	Design Pressure
CHDM=High Flow Filter Housings	HF=HF Series Cartridges	J=304 K=316L	01 = 1	20 = 20"	F50=DN50/(for Single-round)	S=Silicone	M=Mech. Polished	M=Mech. Polished	Y=1.0Mpa
			02 = 2	40 = 40"	F80=DN80/(for 2-round)	E=EPDM	P=Passivated	P=Passivated	
			03 = 3	60 = 60"	F100=DN100/(for 3-round)	V=FKM		S=Abrasive Blasted	
			04 = 4		F125=DN125/(for 4/5-round)				
			05 = 5						

Single-round 40"



Multi-round 40"



Cartridges (mm)	H	L	P	N	C	D	OD
1	1550	1340	310	DN50	420	150	ø219
2	1980	1420	400	DN80	645	170	ø406
3	2030	1440	420	DN100	695	170	ø456
4	2090	1470	450	DN125	750	170	ø508
5	2120	1480	460	DN125	800	170	ø558

# CHDN Series - Bag Filter Housings



CHDN Series - Bag Filter Housings from Filtration are offered in a range of sizes and port options to meet your needs for liquid filtration. The housings are fabricated using best-practice, industry leading production methods to deliver high quality and best value. These are an excellent choice for liquid filtration covering a wide range of applications: food and beverage, fine chemicals, process fluids. The single-bag and multi-bag housings can be customized depending on the user's specific needs.

## Features

- Using quality stainless steel components to build all housings, ensures consistent quality and performance.
- The three-point clamping closure ensures excellent sealing performance.
- The swingbolt closure with eyebolts allows for easy handling and servicing.
- Strengthened filter baskets provide more robust construction and longer service life.
- Housings are manufactured with crevice-free internals, fine polishing inside to ensure surface smoothness.
- Preferable for potable water and food/beverage production.
- Compatible with 1# bag and 2# bag.

## Surface Finish

Finish Processing Options: Internal: Mech Polished / Passivated  
External: Mech Polished / Passivated / Abrasive Blasted

## Materials

Shell Options: 304 or 316L  
Eyebolts: 304  
Legs 304  
Seal Materials: FKM, EPDM

## Applications

- Pre-filtration of RO systems, Bottled water production
- Filtration of process water, condensate water, cooling water, & waste water
- Chemical industry filtration of acids, alkaline liquids, & organic solvents
- Energy industry condensate & cooling waters

## Operating Conditions

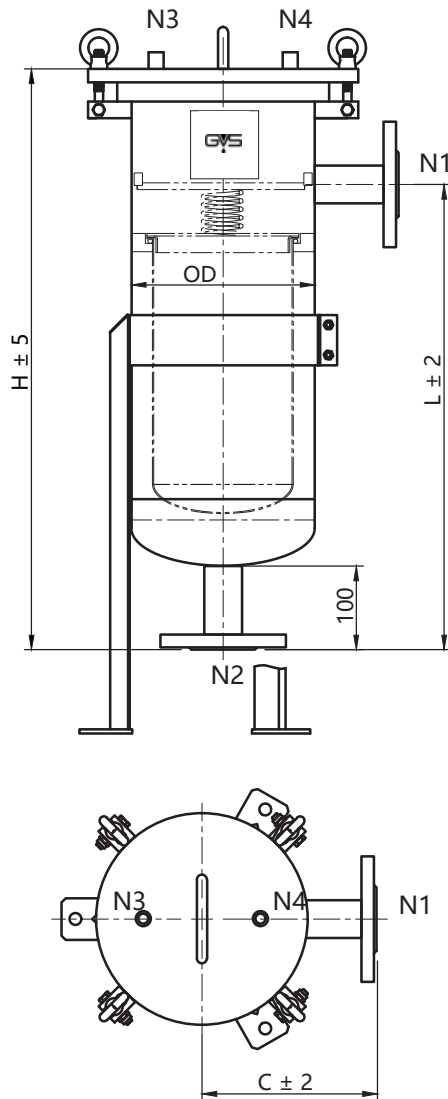
Max. Operating Pressure: 1.0MPa (150psi)  
Max. Operating Temperature: 80°C (176°F)

## Connection

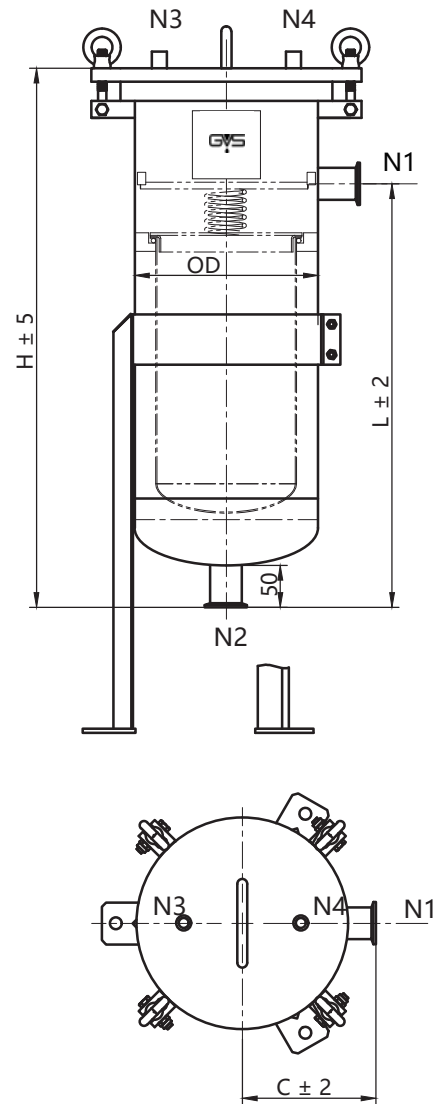
Num	Name	Connection	Note
N1	Inlet	FlangePL-RF/tc	HG/T20592-2009 PN16
N2	Outlet	FlangePL-RF/tc	HG/T20592-2009 PN16
N3	Vent	FNPT1/4"Thread	-
N4	Pressure Gauge Connection	M14*1.5 Thread	-

## Dimensions (mm)

Single-bag 1#Flange

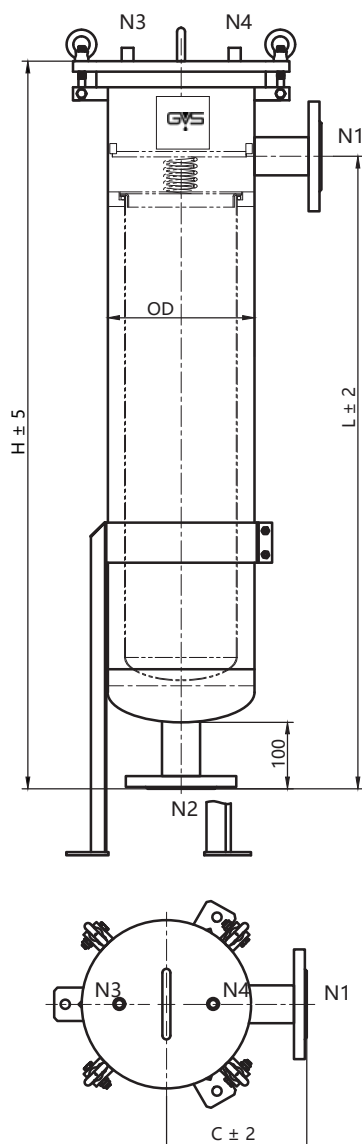


Single-bag 1#TC

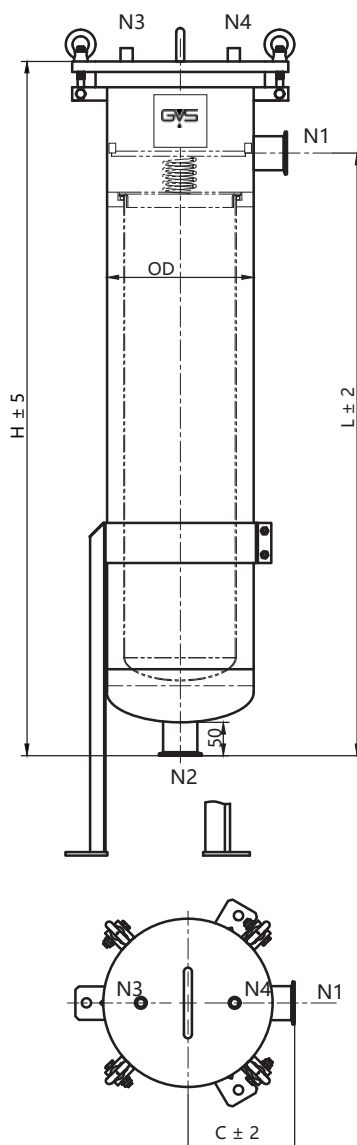


Mode	(mm)	H	L	P	N	C	OD
1# Single-bag TC		645	505	-	1.5"	150	ø219
1# Single-bag Flange		695	555	-	DN40	210	ø219
2# Single-bag TC		1045	905	-	2"	150	ø219
2# Single-bag Flange		1095	950	-	DN50	210	ø219
2#2 bags Flange		1680	1120	400	DN80	645	ø406
2#3 bags Flange		1730	1140	420	DN100	695	ø456
2#4 bags Flange		1790	1170	450	DN125	750	ø508
2#5 bags Flange		1820	1180	460	DN125	800	ø558

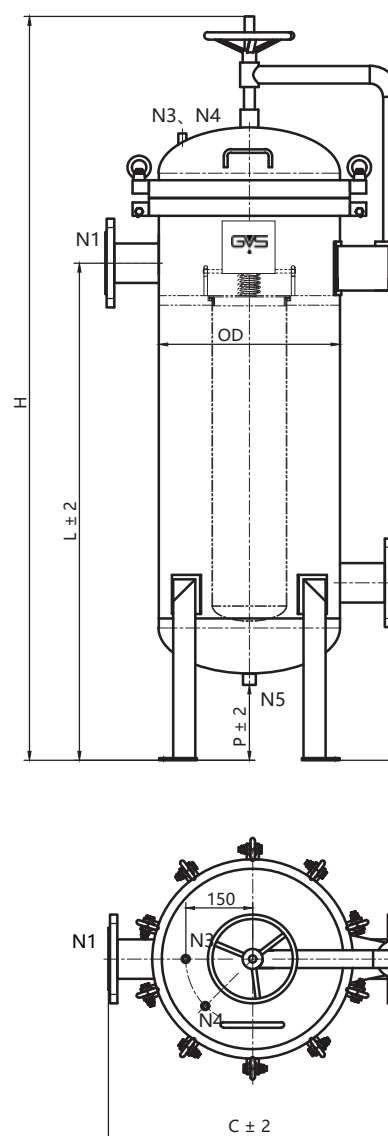
Single-bag 2#Flange



Single-bag 2#TC



Multi-bag 2#Flange



Eg.=>CHDNJ0101T38SMMY

ORDERING INFORMATION

Series	Shell Material	Number Round	FilterBag	Inlet&Outlet	Seal Material	Surface Finish (internal)	Surface Finish (external)	Design Pressure
CHDN=Bag Filter	J=304	01=1	01=1#	T38=TC 1.5"/(for Single-bag 1#)	S=Silicone	M=Mech. Polished	M=Mech. Polished	Y=1.0Mpa
	K=316L	02=2	02=2#	T50=TC 2"/(for Single-bag 2#)	E=EPDM	P=Passivated	P=Passivated	
		03=3		F40=Flange DN40/(for Single-bag 1#)	V=FKM		S=Abrasive Blasted	
		04=4		F50=Flange DN50/(for Single-bag 2#)				
		05=5		F80=Flange DN80/(for 2 bags 2#)				
		06=6		F100=Flange DN100/(for 3 bags 2#)				
		07=7		F125=Flange DN125/(for 4/5 bags 2#)				
		08=8						

# CHDSBC Series - Multi-Cartridge Liquid Filter Housings



## w/ Swing Bolt Closure

Manufactured of AISI304 or AISI316L stainless steel for high-purity industrial filtration requirements. The flexible design accommodates DOE, 222/FIN, and 222/FLAT style cartridges. They accept standard 2.5" to 2.85"OD filter cartridges in configurations of up to 50-around and up to 40" cartridge length.

This housing series offers a great many options for cartridge quantity, flow rate capacity, and porting. They're the standard choice to support higher flow rate applications with abundant options for cartridge media types and retention ratings.

## Features

- Rugged swing-bolt closure allows easy access for cartridge changes.
- Strengthened, welded legs provide a stable and durable installation.
- 150 psi (10 bar) operating pressure rating.
- Davit arm hand wheel features improved ease of operation (12 around and up).
- Can provide flow rates to 1,200 GPM and beyond.

## Applications

- Suitable for the broadest range of industrial applications from process fluid streams for water, aqueous solutions, oils, and fine chemicals
- Used in food and beverage production: filtration of juices, syrups, food ingredients, and bottled water

## Product Quality

- Manufactured within an ISO 9001:2015 certified quality management system.
- Certification of Quality document can be provided upon request.

## Materials of Construction

Shell Components	AISI304 or AISI316L Stainless Steel
Seal Options	EPDM (standard), SILICONE, NBR, FKM

## Surface Finish

Surface Quality	Glass beaded finish is standard Industrial electropolish option
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## Operating Conditions

Operating Temperature	121°C (250°F) max.
Design Pressure	10 bar (150 psi)

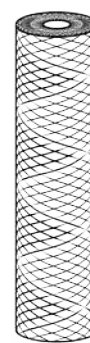
## Cartridge Type



Pleated



Melt  
Blown



String  
Wound



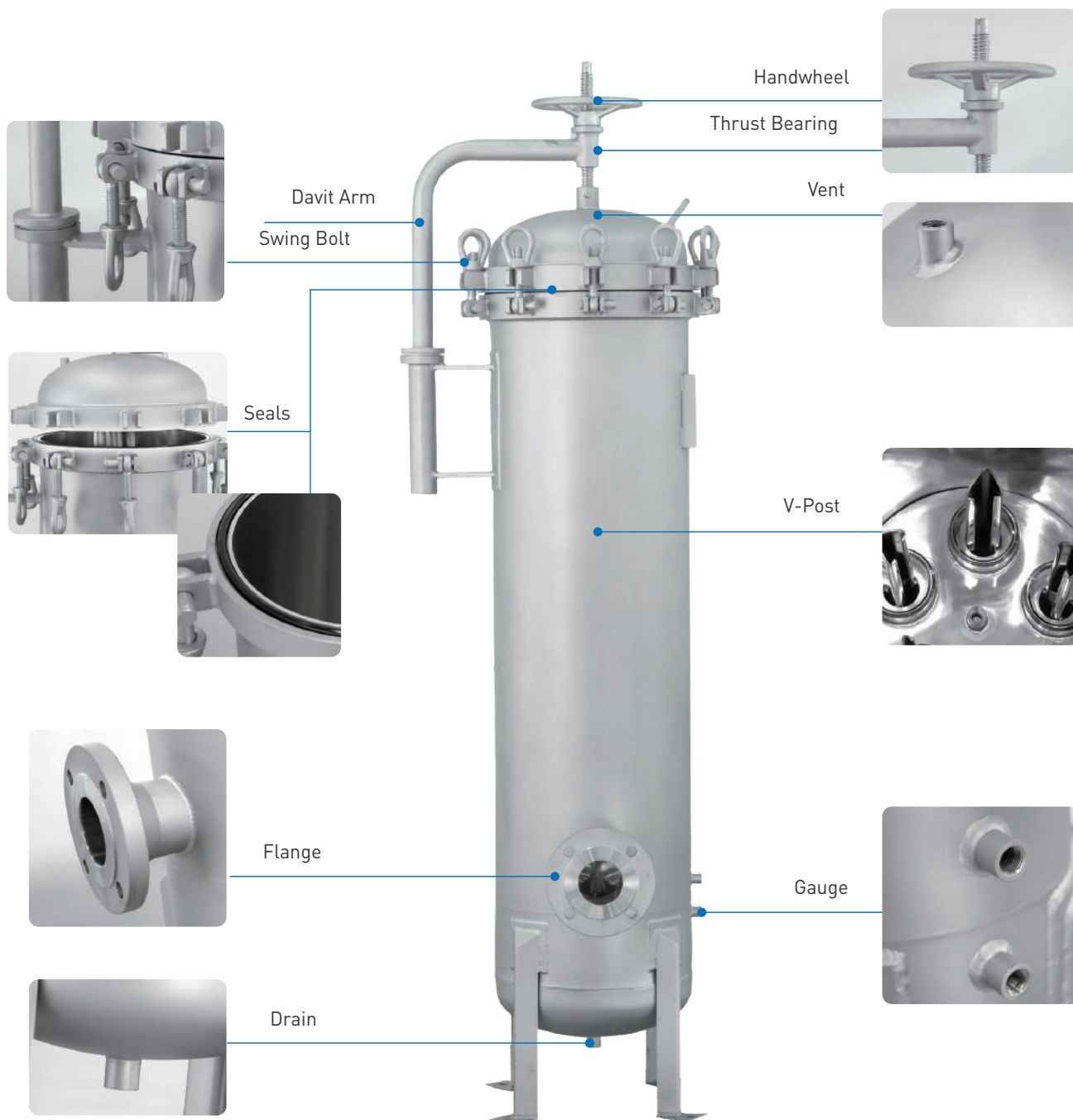
DOE



222/Fin

End Cap

# CHDSBC Series - Multi-Cartridge Liquid Filter Housings

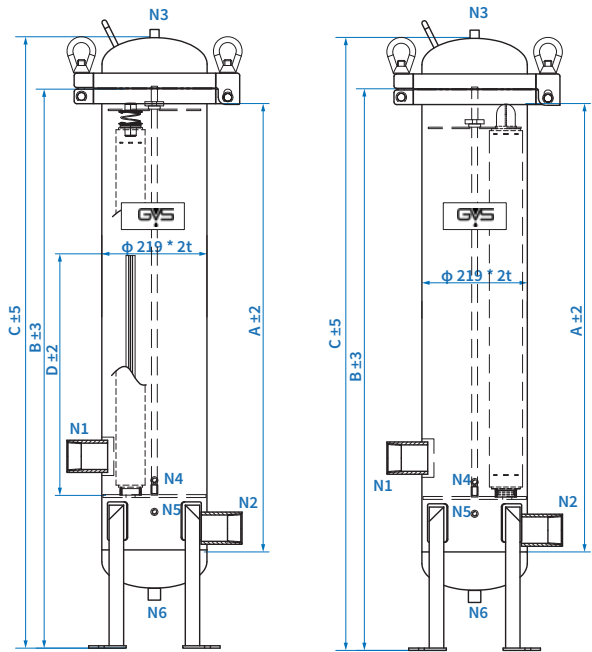
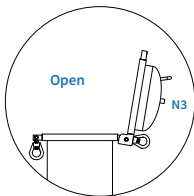
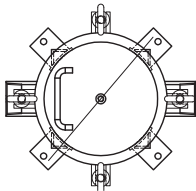


# Dimensions (mm)

## Industrial Cartridge Housing - 5X

Num	Name	Specification	Connection mode
N1	Inlet	FNPT 2"	Thread
N2	Outlet	FNPT 2"	
N3	Vent	FNPT 1/4"	
N4	Gauge	FNPT 1/4"	
N5	Gauge	FNPT 1/4"	
N6	Drain	FNPT 1/2"	

Size	A	B	C	D
10"	430	665	770	120
20"	680	915	1020	247
30"	930	1165	1270	498
40"	1180	1415	1520	746

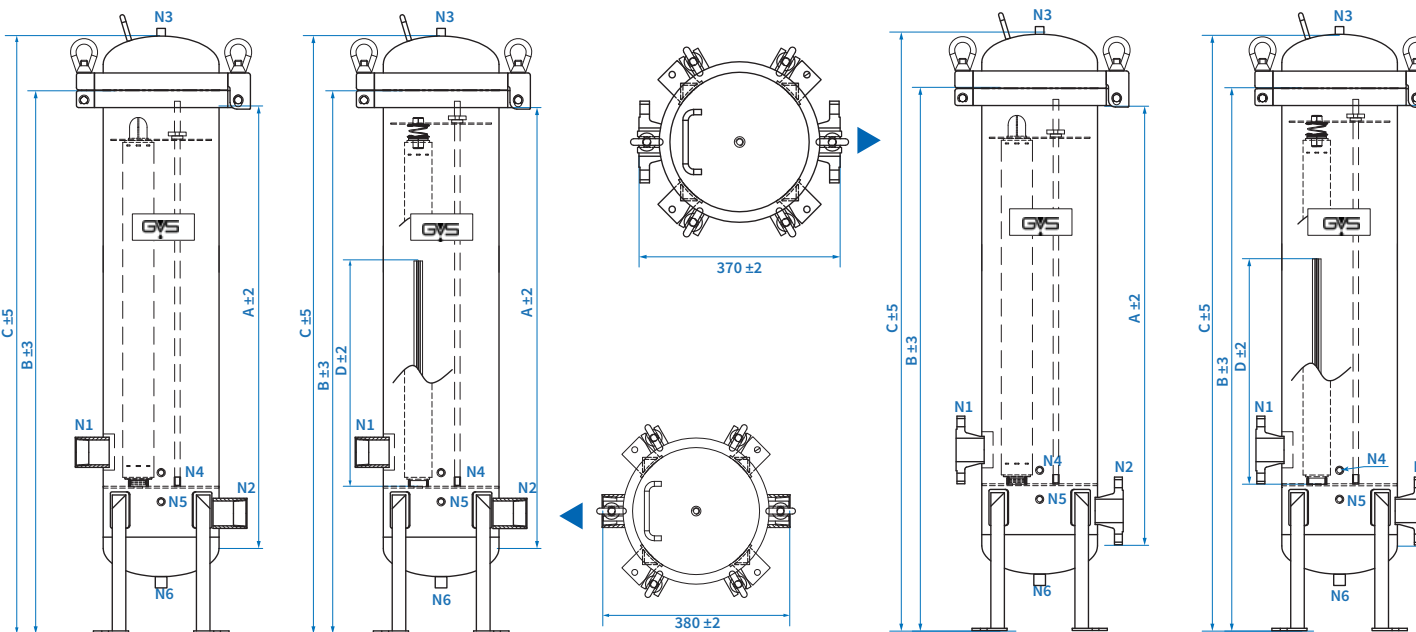


Cartflow

## Industrial Cartridge Housing - 7X

Size	A	B	C	D
10"	450	700	820	120
20"	700	950	1070	247
30"	950	1200	1320	498
40"	1200	1450	1570	746

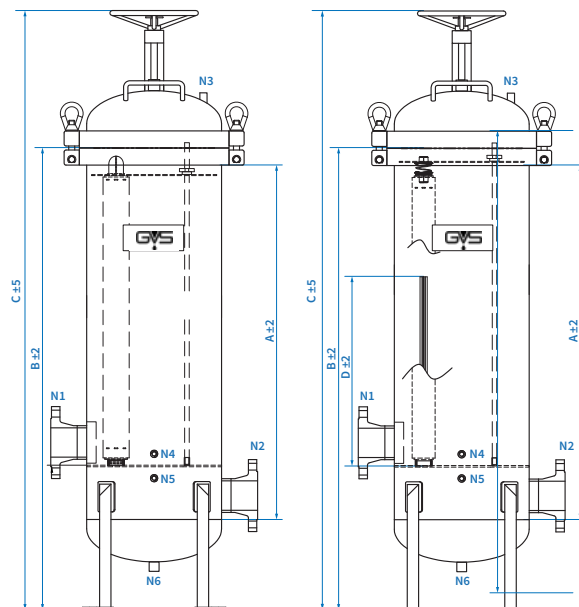
Num	Material	Name	Specification	Connection mode
N1	304	Inlet	FNPT 2"	Thread
	316L	Outlet	WN50-150RF	Flange
N2	304	Inlet	FNPT 2"	Thread
	316L	Outlet	WN50-150RF	Flange
N3	304/316L	Vent	FNPT 1/4"	Thread
N4		Gauge	FNPT 1/4"	
N5		Gauge	FNPT 1/4"	
N6		Drain	FNPT 1/2"	



## Dimensions (mm)

### Industrial Cartridge Housing - 12X

Num	Name	Specification	Connection mode
N1	Inlet	FNPT 2"	Thread
N2	Outlet	FNPT 2"	
N3	Vent	FNPT 1/4"	
N4	Gauge	FNPT 1/4"	
N5	Gauge	FNPT 1/4"	
N6	Drain	FNPT 1/2"	



### Industrial Cartridge Housing - 7X

Size	A	B	C	D
10"	430	665	770	120
20"	680	915	1020	247
30"	930	1165	1270	498
40"	1180	1415	1520	746

Eg.=>CHDSBC4120N304SEP

ORDERING INFORMATION						
Series	Ctg Qty	Cartridge Length	Main Ports	Material	Seals	Option, Standard
CHDSBC	4 4 Cartridges	1 10"	20N 2"FNPT	304 AISI304	E EPDM	EP Electropolished
	5 5 Cartridges	2 20"	30N 3"FNPT	316L AISI316L	B NBR	
	7 7 Cartridges	3 30"	20F 2"RF FLANGE		S Silicone	
	12 12 Cartridges	4 40"	30F 3"RF FLANGE		V FKM	
	21 21 Cartridges		40F 4"RF FLANGE			
	36 36 Cartridges		60F 6"RF FLANGE			
	51 51 Cartridges					

# Integrated Gas Filter Cartridges



# Integrated Gas Filter Cartridges



GVS integrated gas filter cartridges, whose shell is made of electronic grade stainless steel 316L, the internal filter cartridge is made of PFA, and the membrane is PTFE/316L, can effectively remove particles in the gas. Corrosion-resistant and high-pressure resistant materials are suitable for the filtration process of various special gases, with compact structures and easy replacement.

## Features

- **High flux and low pressure loss**

The natural hydrophobicity of PTFE membrane enables it to filter gas with very huge filtration flux and very low initial DP. PTFE membrane has excellent particle trapping capacity, providing particle retention efficiency up to 99.99%. Removal rating up to 0.003 $\mu$ m to achieve fine filtration of pipeline gas.

- **Semiconductor Grade Housing Treatment**

The inner surface of the housing is electrolytically polished with Ra less than 0.1 $\mu$ m. The inner surface is corrosion-resistant and mirror-clean.

- **Excellent chemical compatibility**

PTFE is used as media and high purity SUS316L as the housing material. Both of them have excellent corrosion resistance and can be used for active gas filtration. At the same time, ensure the stable filtration of gas under high temperature and high pressure.

## Material of Constructions

- Media PTFE
- Cage PFA/SUS316

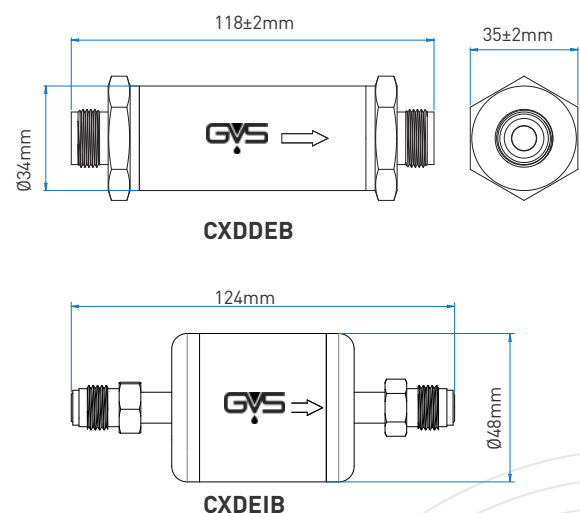
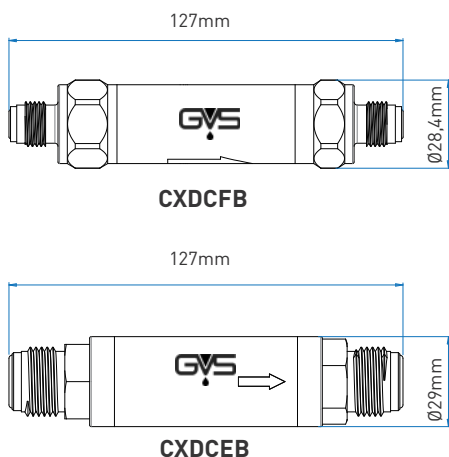
## Dimension

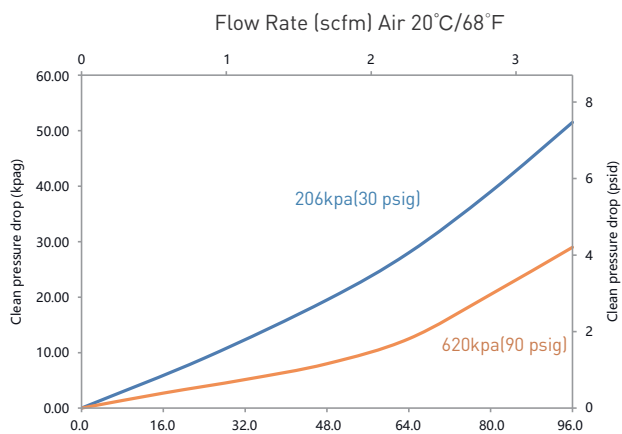
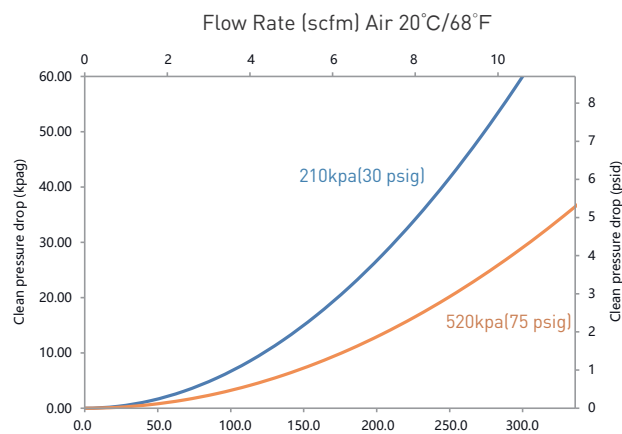
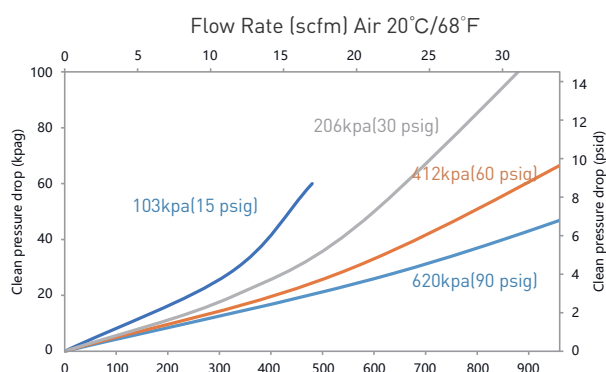
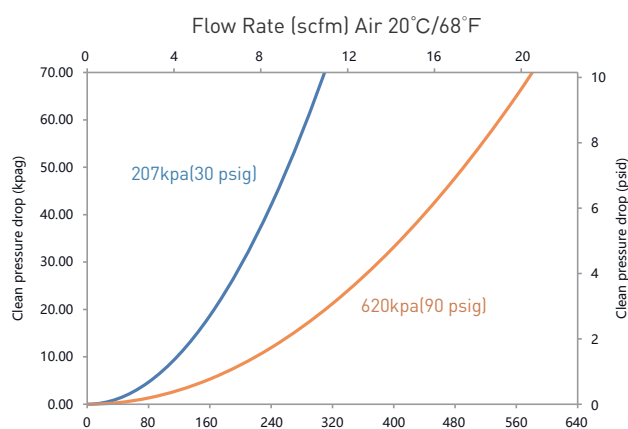
OD	28.4mm
Length	127mm

## Performance

- Max Operating Temperature 80 °C
- Max Allowable DP 6bar @ 20 °C
- Max. Operating Pressure 5.2Mpa @ 80 °C

## Dimensional Drawings



**CXDCFB Pressure Drop vs. Gas Flow rate****CXDCEB Pressure Drop vs. Gas Flow rate****CXDDEB Pressure Drop vs. Gas Flow rate****CXDEIB Pressure Drop vs. Gas Flow rate****Eg.=>CXDCFBF0003MM18V**

Model	Cage Material	Removal Rating	Interface Type
CXDCF=BCFB	F = PFA / SUS316L	0003 = 0.003μm	MM18V = 1/8" VCR (Male/Male)
CXDDEB=DEB		001 = 0.01μm	MM14V = 1/4" VCR (Male/Male)
CXDCEB=CEB			MM38V = 3/8" VCR (Male/Male)
CXDEIB=EIB			MM12V = 1/2" VCR (Male/Male)
			MM34V = 3/4" VCR (Male/Male)
			MM1V = 1" VCR (Male/Male)
			MM14S = 1/4" Swagelok (Male/Male)
			MM516S = 5/16" Swagelok (Male/Male)
			MM38S = 3/8" Swagelok (Male/Male)
			MM12S = 1/2" Swagelok (Male/Male)
			MM58S = 5/8" Swagelok (Male/Male)
			MM34S = 3/4" Swagelok (Male/Male)
			MM78S = 7/8" Swagelok (Male/Male)

# CAPSFLOW



# CSK series

## Capsule Filters

# CSK series - Asymmetrical PES membrane Capsule Filters

## Description and use

- The PES membrane capsule utilizes single layer hydrophilic polyethersulfone membrane. It offers broad chemical compatibility, high flow rate and low extractable.
- Polyethersulfone is particularly suited for the filtration of products that contain substances that adsorb to the media. The lower binding characteristics of polyethersulfone make it a good choice for filtration of valuable protein solutions such as vaccines and biologicals.



## Typical Applications

- Cell Culture Media
- Large Volume Parenterals (LVP's)
- Pharmaceutical Bulk Chemical Solutions
- Diagnostics
- Blood and Serum Fractions
- Purified Water
- Beer, Wine and Spirits
- Juice & Soft Drinks
- Bottled Water

## Fitting Option

- NPT-Male
- NPT-F
- Swagelok
- CPCPLC-Male
- CPCPLC-Female
- Hose Barb
- Stepped Hose Barb
- Triclover

## Maximum Operating Conditions

- Maximum operating pressure:  
Liquid: 5 bar (80psi) at 77°F/25°C  
Gas: 3.5 bar (60psi) at 77°F/25°C

- Maximum Operating Temperature: 80 °C
- Autoclave at 125 °C, 30 minutes and 25 cycles
- Autoclave at 135 °C, 30 minutes and 15 cycles

## Toxicity

All materials meet the specifications for biological safety per USP Class VI - 121C° for plastics.

## Filter Area

- 500 cm<sup>2</sup>
- 1000 cm<sup>2</sup>
- 1500 cm<sup>2</sup>
- 2100 cm<sup>2</sup>

## Construction of Materials

- Filter Media: Polyethersulfone
- Media Support: Polypropylene
- End Caps: Polypropylene
- Inner Core: Polypropylene
- Outer Cage: Polypropylene
- Sealing Method: Thermal Bonding

## Food Safety Compliance

- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations, 21CFR. Materials used to produce filter media and
- hardware are safe for use in contact with foodstuffs in accordance with EU Directives 10/2011

## Capsule Integrity Test Specifications

### Gen Purpose

Pore size	Min.Bubble point
0.04 µm	2.3 barg@22°C/IPA
0.1 µm	4.8 barg@22°C
0.2 µm	3.1 barg@22°C
0.45 µm	1.7 barg@22°C
0.65 µm	1.3 barg@22°C
0.8 µm	1.2 barg@22°C
1.2 µm	0.8 barg@22°C

### Low Bio

Pore size	Min.Bubble point
0.2 µm	3.5 barg@22°C
0.45 µm	2.3 barg@22°C
0.65 µm	1.5 barg@22°C

### Ster Grade

0.2/0.04µm	2.3 Barg@22°C (IPA)
0.45/0.04µm	2.3 Barg@22°C (IPA)
0.45/0.2µm	3.5 barg@22°C
0.65/0.2µm	3.5 barg@22°C
0.65/0.45µm	2.3 Barg@22°C
0.8/0.45µm	2.3 Barg@22°C
0.2/0.1µm	1.7 Barg@22°C (IPA)
0.45/0.1µm	1.7 Barg@22°C (IPA)

ORDERING INFORMATION								
Product type	Membrane Type	Membrane pore size	Application	Sterilization	Size	Fittings in / out	Vent/ Drain	Revision
CSK = Capsule Filter	PS = PES	<b>Application G</b>	G = Gen Purpose	N = Not Sterile	05= 500 cm <sup>2</sup>	4NM=1/4" NPT-M	NN = None	0 = Bag label
		0010 = 0.1µm	B = Low Bio		10 = 1000cm <sup>2</sup>	8NM = 3/8" NPT-M		1 = Housing Label
		0020 = 0.2µm	S = Ster Grade		15 = 1500cm <sup>2</sup>	2NM = 1/2" NPT-M		
		0045 = 0.45µm			21 = 2100cm <sup>2</sup>	8NF = 3/8" NPT-F		
		0065 = 0.65µm				4SL = 1/4" Swagelok		
		0080 = 0.8µm				5SL = 5/16" Swagelok		
		0100 = 1.2µm				8SL = 3/8" Swagelok		
		Application B				4CM = 1/4" CPC-PLC-M		
		0020 = 0.2µm				4HB = 3/4" HB		
		0045 = 0.45µm				8HB = 3/8" HB		
		0065 = 0.65µm				48B = 1/4"-3/8" HB		
		<b>Application S</b>				1TC = 1" TC		
		02X4 = 0.2/0.04µm						
		04X4 = 0.45/0.04µm						
		0402 = 0.45/0.2µm						
		0602 = 0.65/0.2µm						
		0604 = 0.65/0.45µm						
		0804 = 0.8/0.45µm						
		0201 = 0.2/0.1µm						
		0401 = 0.45/0.1µm						

# CSK series - Hydrophobic ePTFE membrane Capsule Filters

## Description and use

Capsflow CSK series PTFE membrane capsule utilizes single layer hydrophobic PTFE membrane. It offers broad chemical compatibility, high flow rate and low extractables.



## Benefits

- 100% integrity tested
- FDA food contact compliant
- Thermal bonding
- Non-fiber releasing

## Typical Application

- Sterile air feed
- Chemicals
- Pharmaceuticals
- Solvent

## Fitting Option

- NPT-Male
- NPT-F
- Swagelok
- CPCPLC-Male
- CPCPLC-Female
- Hose Barb
- Stepped Hose Barb
- Triclover

## Toxicity

All components meet the specifications for biological safety per USP Class VI -121 °C for plastics.

## Cartridge Integrity Test Specifications

### Low Bio

Pore size	0.2 mm
Subbie Point	≥1.4 barg (IPA/ Water)
Water intrusion	≤0.17 mL/min@2500 mbar/2100cm <sup>2</sup> , 2°C/22°C

### Gen Purpose

Pore size	Bubble Point / IPA
0010 = 0.1µm	1.7 barg
0020 = 0.2µm	1.1 barg
0045 = 0.45µm	0.6 barg
0065 = 0.65µm	0.5 barg
0100 = 1.0µm	0.4 barg
0300 = 3.0µm	0.1 barg
0500 = 5.0µm	0.07 barg

## Capsule Integrity

- Minimum burst pressure: 123.5 psi (8.5 barg)

## Construction Materials

- Filter Membrane: ePTFE
- Membrane Media Support: Polypropylene
- Capsule: Polypropylene
- Inner Core: Polypropylene
- Outer Cage: Polypropylene
- Sealing Method: Thermal Bonding

## Sanitization/Sterilization

- Autoclavable

## Filter Area

- 500 cm<sup>2</sup>
- 1000 cm<sup>2</sup>
- 1500 cm<sup>2</sup>
- 2100 cm<sup>2</sup>

## Food Safety Compliance

Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations, 21 CFR. Materials used to produce filter media and hardware are safe for use in contact with foodstuffs in accordance with EU Directives 10/2011.

## Maximum Operating Conditions

- Maximum operating pressure
  - Liquid: 5 bar (80psi) at 77°F/25°C
  - Gas: 3.5 bar (60psi) at 77°F/25°C
- Maximum Operating Temperature: 80 °C
- Autoclave at 125 °C, 30 minutes and 25 cycles
- Autoclave at 135 °C, 30 minutes and 15 cycles

### ORDERING INFORMATION

Product Type	Membrane Type	Membrane pore size	Application	Sterilization	Size	Fittings in / out	Vent/Drain	Revision
CSK = Capsule Filter	PT = PTFE phobic	<b>Application G</b>	G = Gen Purpose	N = Not Sterile	05= 500 cm <sup>2</sup>	4NM=1/4" NPT-M	NN = None	0 = Bag label
		0010 = 0.1µm	B = Low Bio		10 = 1000cm <sup>2</sup>	8NM = 3/8" NPT-M		1 = Housing Label
		0020 = 0.2µm			15 = 1500cm <sup>2</sup>	2NM = 1/2" NPT-M		
		0045 = 0.45µm			21 = 2100cm <sup>2</sup>	8NF = 3/8" NPT-F		
		0065 = 0.65µm				4SL = 1/4" Swagelok		
		0100 = 1.0µm				5SL = 5/16" Swagelok		
		0300 = 3.0µm				8SL = 3/8" Swagelok		
		0500 = 5.0µm				4CM = 1/4" CPC-PLC-M		
		<b>Application B</b>				4HB = 3/4" HB		
		0020 = 0.2µm				8HB = 3/8" HB		
						48B = 1/4"-3/8" HB		
						1TC = 1" TC		

# CSK series - Polypropylene membrane Capsule Filters

## Description and use

CSKPP Capsule Filters with depth structure of polypropylene media. It offers broad chemical compatibility, higher dirt holding capacity with high flow rates at low pressure drop, and low extractables. They are available in nominal and absolute rating.



## Benefits

- Wide chemical compatibility
- High dirt hold capacity
- High retention
- Thermal bonding
- Non-fiber releasing

## Typical Application

- Process Water
- Vinegar
- Aqueous solutions
- Beer, Wine and Spirits
- Juice, Soft Drinks, Edible Oils
- Bulk Chemicals
- Pharmaceutical intermediates

## Construction Materials

- Filter Media: Polypropylene
- Media Support: Polypropylene
- End Caps: Polypropylene
- Inner Core: Polypropylene
- Outer Cage: Polypropylene
- Sealing Method: Thermal Bonding

## Sanitization/Sterilization

- Autoclavable
- Hot water

## Toxicity

All components meet the specifications for biological safety per USP Class VI -121 °C for plastics.

## Capsule Integrity

- Minimum burst pressure: 123.5 psi (8.5 barg)

## Filter Area

- 500 cm<sup>2</sup>
- 1000 cm<sup>2</sup>
- 1500 cm<sup>2</sup>
- 2100 cm<sup>2</sup>

## Food Safety Compliance

Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations, 21CFR.

Materials used to produce filter media and hardware are safe for use in contact with foodstuffs in accordance with EU Directives 10/2011.

## Maximum Operating Conditions

- Maximum operating pressure
  - Liquid: 5 bar (80psi) at 77°F/25°C
  - Gas: 3.5 bar (60psi) at 77°F/25°C
- Maximum Operating Temperature: 80 °C
- Autoclave at 125 °C, 30 minutes and 25 cycles
- Autoclave at 135 °C, 30 minutes and 15 cycles

ORDERING INFORMATION								
Product Type	Membrane Type	Membrane pore size	Application	Sterilization	Size	Fittings in / out	Vent/Drain	Revision
CSK = Capsule Filter	PP = Polypropylene	<b>Application G</b>	G = Gen Purpose	N = Not Sterile	05= 500 cm <sup>2</sup>	4NM=1/4" NPT-M	NN = None	0 = Bag label
		0030 = 0.3µm	P= Premier		10 = 1000cm <sup>2</sup>	8NM = 3/8" NPT-M		1 = Housing Label
		0060 = 0.6µm			15 = 1500cm <sup>2</sup>	2NM = 1/2" NPT-M		
		0100 = 1.0µm			21 = 2100cm <sup>2</sup>	8NF = 3/8" NPT-F		
		0300 = 3.0µm				4SL = 1/4" Swagelok		
		0500 = 5.0µm				5SL = 5/16" Swagelok		
		0700 = 7.0µm				8SL = 3/8" Swagelok		
		1000 = 10.0µm				4CM = 1/4" CPC-PLC-M		
		2000 = 20.0µm				4HB = 3/4" HB		
		3000 = 30.0µm				8HB = 3/8" HB		
		5000 = 50.0µm				48B = 1/4"-3/8" HB		
		<b>Application P</b>				1TC = 1" TC		
		0100 = 1.0µm						
		0300 = 3.0µm						
		0500 = 5.0µm						
		0700 = 7.0µm						
		1000 = 10.0µm						
		2000 = 20.0µm						
		3000 = 30.0µm						
		5000 = 50.0µm						

# CLK series

## In Line Integrity Test Capsule Filter

# CLK series - Asymmetrical PES membrane Bio-burden Reduction Capsule Filters

Capsflow CLK series is family of full size capsule filters with Staubli connection at the vent, which enables in-line integrity test.

The PES membrane capsule utilizes single layer hydrophilic polyethersulfone membrane. It offers broad chemical compatibility, high flow rate and low extractable.

Polyethersulfone is particularly suited for the filtration of products that contain substances that adsorb to the media. The lower binding characteristics of polyethersulfone make it a good choice for filtration of valuable protein solutions such as vaccines and biologicals.



Capsule

## Typical Applications

- Cell Culture Media
- Large Volume Parenterals (LVP's)
- Pharmaceutical Bulk Chemical Solutions
- Diagnostics
- Blood and Serum Fractions
- Purified Water
- Beer, Wine and Spirits
- Juice & Soft Drinks
- Bottled Water

## Vent/Drain Option

Staubli

Stepped hose barb

## Fitting Option

- 1.5" TC
- 1/2" Hose Barb
- 3/4" Hose Barb

## Maximum Operating Conditions

- Maximum operating pressure
  - Liquid: 5 bar (80psi) at 77°F/25°C
  - Gas: 3.5 bar (60psi) at 77°F/25°C
- Maximum Operating Temperature: 80 °C
- Autoclave at 125 °C, 30 minutes and 25 cycles
- Autoclave at 135 °C, 30 minutes and 15 cycles

## Toxicity

All materials meet the specifications for biological safety per USP Class VI -121°C for plastics

## Filter Area

Size      Filtration Area

- 2.5" = 1400 cm<sup>2</sup>
- 5" = 2500 cm<sup>2</sup>
- 10" = 6000 cm<sup>2</sup>
- 20" = 12000 cm<sup>2</sup>
- 30" = 18000 cm<sup>2</sup>
- 40" = 24000 cm<sup>2</sup>

## Construction of Materials

- Filter Media: Polyethersulfone
- Media Support: Polypropylene
- End Caps: Polypropylene
- Inner Core: Polypropylene
- Outer Cage: Polypropylene
- Sealing Method: Thermal Bonding

## Food Safety Compliance

Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations, 21CFR. Materials used to produce filter media and hardware are safe for use in contact with foodstuffs in accordance with EU Directives 10/2011.

## Cartridge Integrity Test Specifications

### Water wetted membrane

Pore size	Min.Bubble point	Diffusive Flow/10"
0.04 µm	2.3 barg@22°C/IPA	≤ 25 ml/ 1.7 barg
0.1 µm	1.7 barg@22°C/IPA	≤ 25 ml/ 1.3 barg
0.2 µm	3.5 barg@22°C	≤ 25 ml/ 2.8 barg
0.45 µm	2.3 barg@22°C	≤ 25 ml/ 1.7 barg
0.65 µm	1.6 barg@22°C	≤ 25 ml/ 1.0 barg
0.8 µm	1.3 barg@22°C	≤ 25 ml / 0.8 barg
1.2 µm	0.9 barg@22°C	≤ 25 ml/ 0.6 barg

### ORDERING INFORMATION

Product Type	Membrane Type	Membrane pore size	Application	Sterilization	Size	Fittings In/Out	Vent/Drain	Revision
CIK = Capsule InT Filter	PS = PES	0010 = 0.1 µm	B =Low Bio	N = Not Sterile	SS = 2.5"	5TC = 1.5" TC	SS = St/St	0 = Bag label
		0020 = 0.2 µm			LL = 5"	2HB = 1/2" HB	HH = HB/HB	1 = Housing label
		0045 = 0.45 µm			TE = 10"	4HB = 3/4" HB	SH = St/HB	
		0065 = 0.65 µm			TW = 20"	T2B = 1.5" TC/ 1/2" HB	HS = HB/St	
		0080 = 0.80 µm			TH = 30"	T4B = 1.5" TC/ 3/4" HB		
		0120 = 1.2 µm			FO = 40"	2BT = 1/2"HB/ 1.5 TC		
						2B4 = 1/2"HB/ 3/4"HB		
						4BT = 3/4"HB/ 1.5"TC		
						4B2 = 3/4"HB/ 1/2"HB		

# CIK series - Hydrophobic ePTFE membrane Bio-burden Reduction Capsule Filters

Capsflow CIK series is family of full size capsule filters with Staubli connection at the vent, which enables in-line integrity test.

The PTFE membrane Bio-burden reduction capsule utilizes single layer hydrophobic PTFE membrane. It offers broad chemical compatibility, high flow rate and low extractables.



Capsule

## Benefits

- 100% integrity tested
- FDA food contact compliant
- Thermal bonding
- Non-fiber releasing

## Typical Application

- Sterile air feed
- Chemicals
- Pharmaceuticals
- Solvent

## Capsule Integrity

- Minimum burst pressure: 123.5 psi (8.5 barg)

## Construction Materials

- Filter Membrane: ePTFE
- Membrane Media Support: Polypropylene
- Capsule: Polypropylene
- Inner Core: Polypropylene
- Outer Cage: Polypropylene
- Sealing Method: Thermal Bonding

## Sanitization/Sterilization

- Autoclavable

## Cartridge Integrity Test Specifications

Pore size	0.2 mm
Subbie Point	≥1.2 barg (IPA/ Water)
Water intrusion	≤0.37 ml/min @ 2500 mbar/10", 22°C
Diffusive Flow	10 ml/min @ 800 mbar/ 10", 22°C

## Filter Area

Size      Filtration Area

- 2.5" = 1500 cm<sup>2</sup>
- 5" = 2700 cm<sup>2</sup>
- 10" = 6300 cm<sup>2</sup>
- 20" = 12600 cm<sup>2</sup>
- 30" = 18900 cm<sup>2</sup>
- 40" = 25200 cm<sup>2</sup>

## Fitting Option

- 1.5" TC
- 1" Hose Barb
- 3/4" Hose Barb

## Vent/Drain Option

- Staubli
- Stepped hose barb

## Toxicity

- All components meet the specifications
- for biological safety per USP Class VI -121 °C for plastics

## Food Safety Compliance

- Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations, 21 CFR.
- Materials used to produce filter media and hardware are safe for use in contact with foodstuffs in accordance with EU Directives 10/2011.

## Maximum Operating Conditions

- Maximum operating pressure
  - Liquid: 5 bar (80psi) at 77°F/25°C
  - Gas: 3.5 bar (60psi) at 77°F/25°C
- Maximum Operating Temperature: 80 °C
- Autoclave at 125 °C, 30 minutes and 25 cycles
- Autoclave at 135 °C, 30 minutes and 15 cycles

### ORDERING INFORMATION

Product Type	Membrane Type	Membrane pore size	Application	Sterilization	Size	Fittings In/Out	Vent/Drain	Revision
CIK = Capsule InT Filter	PT = PTFE phobic	0020 = 0.2 µm	B = Low Bio	N = Not Sterile	SS = 2.5"	5TC = 1.5" TC	SS = St/St	0 = Bag label
					LL = 5"	2HB = 1/2" HB	HH = HB/HB	1 = Housing label
					TE = 10"	4HB = 3/4" HB	SH = St/HB	
					TW = 20"	T2B = 1.5" TC/ 1/2" HB	HS = HB/St	
					FO = 40"	T4B = 1.5" TC/ 3/4" HB		
						2BT = 1/2"HB/ 1.5TC		
						2B4 = 1/2"HB/ 3/4"HB		
						4BT = 3/4"HB/ 1.5"TC		
						4B2 = 3/4"HB/ 1/2"HB		

# CLK series - Polypropylene media

## General Application Capsule Filters

CLKPP Capsule Filters with depth structure of polypropylene media. It offers broad chemical compatibility, higher dirt holding capacity with high flow rates at low pressure drop, and low extractables. They are available in nominal and absolute rating.



### Benefits

- Wide chemical compatibility
- High dirt hold capacity
- High retention
- Thermal bonding
- Non-fiber releasing

### Typical Applications

- Process Water
- Vinegar
- Aqueous solutions
- Beer, Wine and Spirits
- Juice, Soft Drinks, Edible Oils
- Bulk Chemicals
- Pharmaceutical intermediates

### Construction Materials

- Filter Media: Polypropylene
- Media Support: Polypropylene
- End Caps: Polypropylene
- Inner Core: Polypropylene
- Outer Cage: Polypropylene
- Sealing Method: Thermal Bonding

### Sanitization/Sterilization

- Autoclavable
- Hot water

### Toxicity

- All plastic parts meet the specifications for biological safety per USP Class VI -121°C for plastics.

### Filter Area

Size      Filtration Area

- 2.5" =1480 cm<sup>2</sup>
- 5" =2650 cm<sup>2</sup>
- 10" =5500 cm<sup>2</sup>
- 20" =11000 cm<sup>2</sup>
- 30" =16500 cm<sup>2</sup>
- 40" =22000 cm<sup>2</sup>

### Capsule Integrity

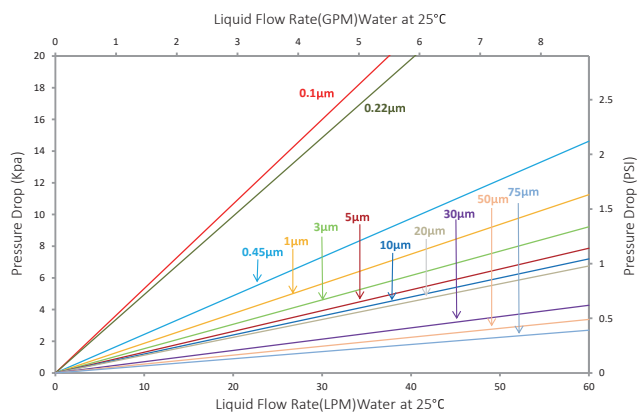
Minimum burst pressure: 123.5psi (8.5 barg) Food Safety Compliance

Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations, 21CFR.

Materials used to produce filter media and hardware are safe for use in contact with foodstuffs in accordance with EU Directives 10/2011

### Maximum Operating Conditions

- Maximum operating pressure
  - Liquid: 5 bar (80psi) at 77°F/25°C
  - Gas: 3.5 bar (60psi) at 77°F/25°C
- Maximum Operating Temperature: 80 °C
- Autoclave at 125 °C, 30 minutes and 25 cycles
- Autoclave at 135 °C, 30 minutes and 15 cycles



## ORDERING INFORMATION

Product Type	Membrane Type	Membrane pore size	Application	Sterilization	Size	Fittings	Vent/Drain	Revision
CIK = Capsule InT Filter	PP = Polypropylene	<b>Application G</b>	G = Gen Purpose	N = Not Sterile	SS = 2.5"	5TC = 1.5" TC	SS = St/St	0 = Bag label
		0060 = 0.6 µm	P= Premier		LL = 5"	2HB = 1/2" HB	HH = HB/ HB	1 = Housing label
		<b>Application P</b>			TE = 10"	4HB = 3/4" HB	SH = St/HB	
		0100 = 1.0 µm			TW = 20"	T2B = 1.5" TC/ 1/2" HB	HS = HB/St	
		0300 = 3.0 µm			TH = 30"	T4B = 1.5" TC/ 3/4" HB		
		0500 = 5.0 µm			FO = 40"	2BT = 1/2"HB/ 1.5TC		
		0700 = 7.0 µm				2B4 = 1/2"HB/ 3/4"HB		
		1000 = 10.0 µm				4BT = 3/4"HB/ 1.5"TC		
		2000 = 20.0 µm				4B2 = 3/4"HB/ 1/2"HB		
		3000 = 30.0 µm						
		5000 = 50.0 µm						

# KP cellulosic depth media capsule filter

KP cellulosic depth media capsule filter have been designed for simple, quick, and efficient filtration of fluids used in laboratories, pilot, and small scale applications. The family of products is particularly suitable for high loading liquid applications. The compact design of the filters with respect to the filtration area, reduces hold-up volume and optimizes performance. Multiple pore size options is assembled in all polypropylene construction for excellent chemical compatibility.

The cellulosic depth media is structured in a stacked disk format to provide optimal flow. No adhesives, binders, surfactants are used in the process of manufacture.



Capsule

## Typical Applications

- Prefiltration
- Secondary clarification
- Cell culture harvest
- Cell culture clarification Protein aggregate removal

## Filtration Area

- Single layer:  $1300\text{cm}^2/10''$
- Double layer:  $650\text{cm}^2/10''$

## Material construction

- Filter Media:
  - Cleaned and bleached cellulose
  - Natural filter aid (kieselguhr, perlite)
- Media Support: Polypropylene
- End Caps: Polypropylene
- Inner Core: Polypropylene
- Outer Cage: Polypropylene

## Fitting Option

- 1.5" TC
- 3/4" Hose Barb
- 1/2" Hose Barb
- 3/4" TC

## Vent/Drain Option

- Staubli
- Stepped hose barb

## Toxicity

All materials meet the specifications for biological safety per USP Class VI-121°C for plastics

## Capsule Integrity

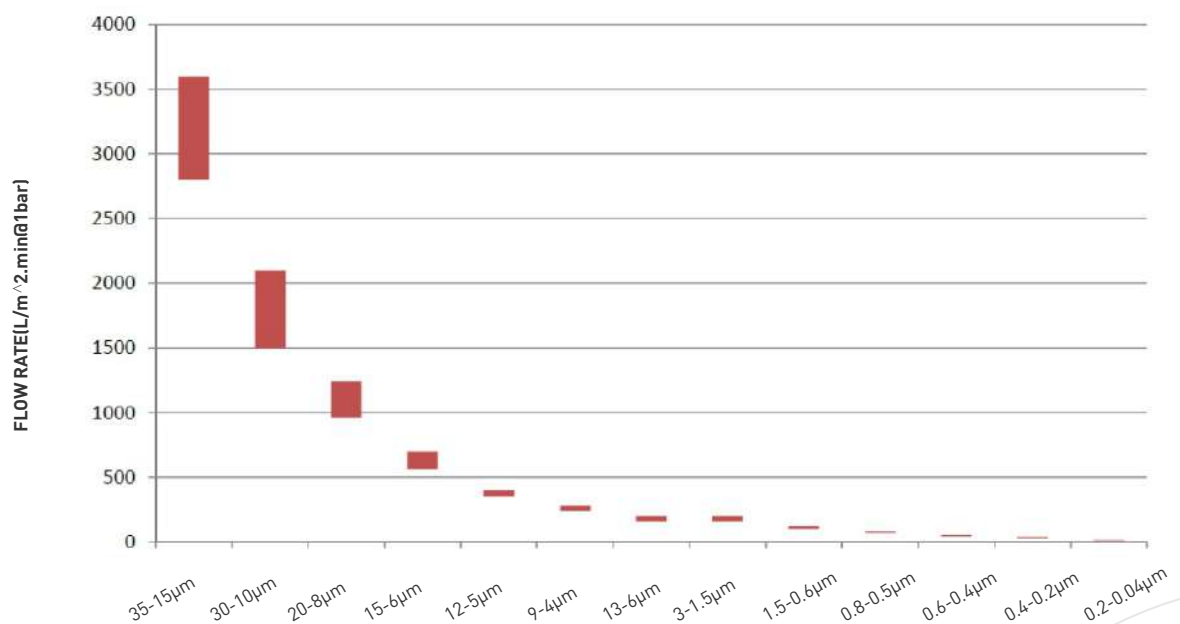
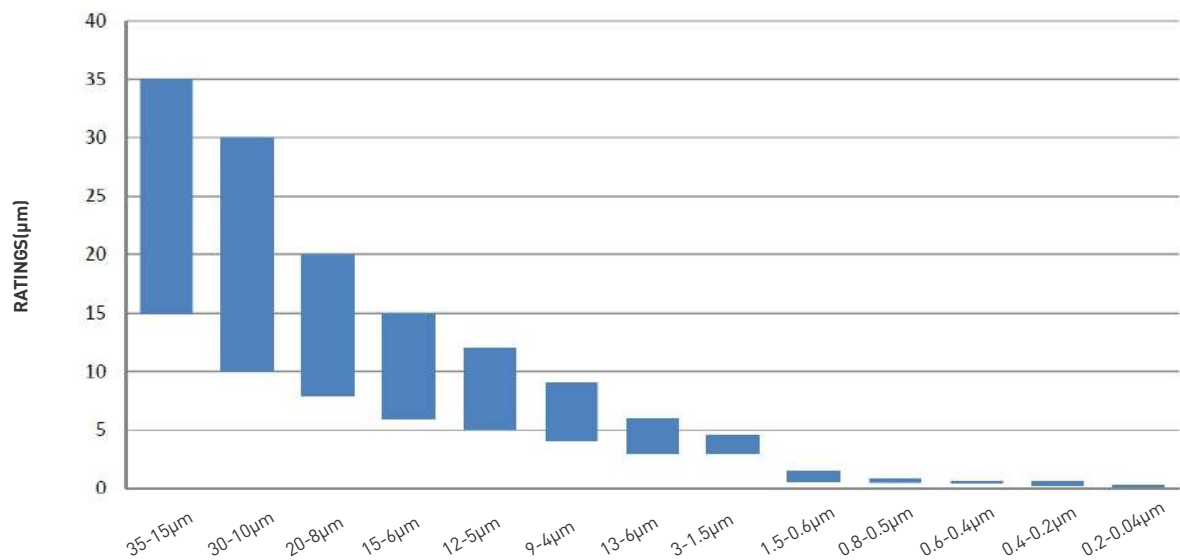
Minimum burst pressure: 123.5psi (8.5barg)

## Food Safety Compliance

Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations, 21CFR. Materials used to produce filter media and hardware are safe for use in contact with foodstuffs in accordance with EU Directives 10/2011

## Media Grade/Rating

	Retention Rating/ $\mu\text{m}$
Coarse filtration	35-15
Coarse filtration	30-10
Coarse filtration	20-8
Clear filtration	15-6
Clear filtration	12-5
Clear filtration	9-4
Clear filtration	6-13
Fine filtration	3-1.5
Germ Reduction filtration	1.5-0.6
Sterile Filtration	0.8-0.5(Serratia marcescens, LRV>5)
Sterile Filtration	0.6-0.4(Serratia marcescens, LRV>7)
Sterile Filtration	0.4-0.2(Serratia marcescens, LRV>8)
Sterile Filtration	0.2-0.04(Serratia marcescens, LRV>8)



ORDERING INFORMATION								
Product Type	Membrane Type	Membrane pore size	Application	Sterilization	Size	Fittings in / out	Vent/Drain	Revision
CKC = Capsule InT Depth Filter	CC = Cellulose	Z2Y4 = 0.2-0.04µm	G = Gen Purpose	N = Not Sterile	SS = 2.5"	5TC = 1.5" TC	SS = St/St	0 = Bag label
CCT = Capsule T-Line Depth Filter		Z4Z2=0.4-0.2µm			LL = 5"	2HB = 1/2" HB	HH = HB/HB	1 = Housing label
CCT is only available in 1.5"TC connection		Z6Z4 = 0.6-0.4µm			TE = 10"	4HB = 3/4" HB	SH = St/HB	
		Z8Z5=0.8-0.5µm			TW = 20"	T25 = 3/4" TC	HS = HB/St	
		15Z6=1.5-0.6µm			TH = 30"			
		3X15=3-1.5µm						
		9XX4=9-4µm						
		12X5=12-5µm						
		13X6=13-6µm						
		15X6=15-6µm						
		20X8=20-8µm						
		3010=30-10µm						
		33515=35-15µm						

# CXK series

## Steaming in Place

### Capsule Filter

# CXK series

## Steaming in Place Capsule Filters

### Description and use

The GVS CXK Capsflow Steaming in Place Capsule filters have a standard filter sealed in a robust plastic housing, which remains high-strength and integral at a harsh applications.

Typically Steaming in Place (SIP) sterilization. Capsflow filters are manufactured under criteria of certified Quality management system ISO 9001. All filters are integrity tested during manufacture to meet the set requirements. Materials of construction comply with FDA regulations for food and beverage contact use.



Capsule

### Benefits

- Purpose-designed for SIP
- Cost-saving
- Easy connection with sanitary flange
- On-line connection to automatic integrity tester Available in multiple choice of media and ratings

### Typical Application

- Sterile filtration of air and liquid in pharmaceutical and biological products
- Sterile air feed

### Construction Materials

- Hydrophobic Filter membrane: PTFE,
- Hydrophilic Filter membrane: PES, NYLON
- Media Support: Polypropylene
- End Caps: Polypropylene
- Inner Core: Polypropylene
- Outer Cage: Polypropylene
- Filter sealing without glue in housing

### Traceability

Each capsule is marked with a unique part number, batch number and serial number to enable full traceability

## Size

- 2.5" (84 mm)
- 5" (159 mm)

## Toxicity

All components meet the specifications for biological safety per USP class VI 121°C for plastic

## Food Safety Compliance

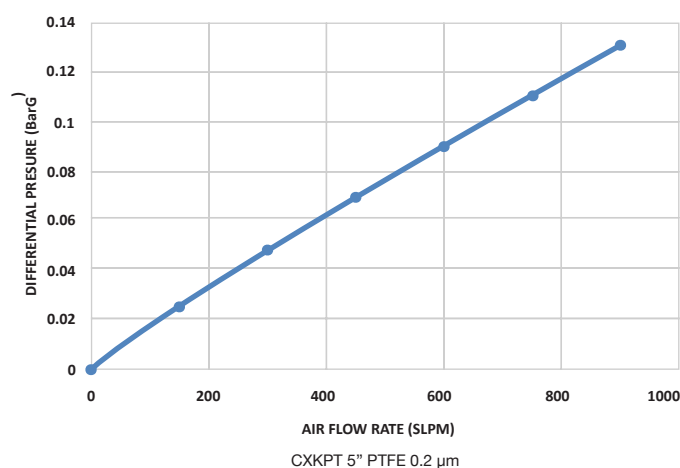
Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations, 21 CFR. Materials used to produce filter media

and hardware are safe for use in contact with foodstuffs in accordance with EU Directives 10/2011. Rohs 2011/65/ EU compliance.

## Maximum Operating Conditions

- CXKPT (PTFE) 0.2 µm:
- Maximum Pressure: 5.8 barg @ 40°C
- Maximum Differential Pressure: 5barg @ 40°C

## Typical Air Flow Rate



## Filtration Area

### CXKPT (PTFE), CXKPS (PES)

- 2.5" : 600 cm<sup>2</sup>

### CXKNY (NYLON)

- 2.5" : 700 cm<sup>2</sup>
- 5" : 2100 cm<sup>2</sup>
- 5" : 1700 cm<sup>2</sup>

## Performance data

	CXKPT				CXKPS			CXKNY		
Filter membrane	PTFE (Hydrophobic)				PES (Hydrophilic)			NYLON (Hydrophilic)		
Membrane pore size	0.05 µm	0.1 µm	0.2 µm	0.45 µm	0.1 µm	0.21 µm	0.45 µm	0.1 µm	0.21 µm	0.45 µm
Flow rate 2.5" Liquid 1 cP *	2lpm@6psid 3.1lpm@6psid 5.9lpm@6psid				7.5lpm@5psid	5lpm@5psid	5lpm@2.6psid	4lpm@8.5psid	5lpm@5.5psid	5lpm@3.5psid
Flow rate 5" Liquid 1 cP *	5lpm@6.5psid 5lpm@4psid 5lpm@1.9psid				5lpm@4psid	5lpm@2.2psid	5lpm@1.3psid	5lpm@4.6psid	5lpm@3.4psid	5lpm@2.8psid
Maximum Operating Parameter Pressures Forward/Reverse (bar)	6.5/3.5	6.5/3.5	6.5/3.5	6.5/3.5	6.5/3.5	6.5/3.5	6.5/3.5	6.5/3.5	6.5/3.5	6.5/3.5
Integrity Test specification Bubble point (bar)	2.7 (IPA)	1.6 (IPA)	1.6 (IPA)	0.5 (IPA)	1.8 (IPA)	3.6 (WATER)	2.6 (WATER)	4.5 (WATER)	3.3 (WATER)	1.9 (WATER)
N. SiP sterilization cycles	100 cycles @126 °C				50 cycles @126 °C			50 cycles @126 °C		

\* CXKPT (PTFE - Hydrophobic) IPA Wetted membrane

ORDERING INFORMATION								
Product Type	Membrane Type	Membrane pore size	Application	Sterilization	Size	Fittings in / out	Vent/Drain	Revision
CXK = Capsule SiP Filter	PT = PTFE phobic	0005 = 0.05 µm (PT only)	X = Steaming in place	N = Not Sterile	SS = 2.5" LL = 5"	5TC = 1.5" TC	SS = St/St	0 = Bag label
	PT = PES	0010 = 0.1 µm					HH = HB/HB	
	NY = NYLON	0020 = 0.2 µm					SH = St/HB	
							HS = HB/St	

# CIL series

In-line filter PES membrane  
Capsule Filter

# In line filter PES membrane

## Capsule Filters bio-burden reduction

### Description and use

The In-line capsule filters is family of full size capsule filters available in multiple option of length. The PES membrane capsule utilizes single layer hydrophilic polyethersulfone membrane. It offers broad chemical compatibility, high flow rate and low extractables.

Polyethersulfone is particularly suited for the filtration of products that contain substances that adsorb to the media. The lower binding characteristics of polyethersulfone make it a good choice for filtration of valuable protein solutions such as vaccines and biologicals.



Capsule

### Typical Applications

- Cell Culture Media
- Large Volume Parenterals (LVP's)
- Pharmaceutical Bulk Chemical Solutions
- Diagnostics
- Blood and Serum Fractions
- Purified Water
- Beer, Wine and Spirits
- Juice & Soft Drinks
- Bottled Water

### Toxicity

- All materials meet the specifications
- far biological safety per USP Class
- VI -121C° far plastics.

### Filter Area

- 0.6 cm<sup>2</sup>/10" c

### Fitting Option

- 1.5" TC

### Vent/Drain Option

- Stepped hose barb

### Capsule Integrity

- Minimum burst pressure: 123.5psi (8.5barg)

### Construction Materials

- Filter Media: Polyethersulfone
- Media Support: Polypropylene
- End Caps: Polypropylene
- Inner Core: Polypropylene
- Outer Cage: Polypropylene
- Sealing Method: Thermal Bonding
- Filter sealing without glue in housing

## Food Safety Compliance

Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations, 21CFR. Materials used to produce filter media and hardware are safe for use in contact with foodstuffs in accordance with EU Directives 10/2011.

## Capsule Integrity Test Specifications

Pore size	Min.Bubble point	Diffusive Flow
0.2 µm	3.5 barg@22°C	≤28ml/2.8 barg
0.45 µm	2.3 barg@22°C	≤25ml/1.7 barg
0.65 µm	1.6 barg@22°C	≤25ml/1.0 barg

ORDERING INFORMATION								
Product Type	Membrane Type	Membrane pore size	Application	Sterilization	Size	Fittings In/Out	Vent/Drain	Revision
CIL= TIn-Line Capsule Filter	PS = PES	0020 = 0.2 µm	B =Low Bio	N = Not Sterile	SS = 2.5"	5TC = 1.5" TC	HH = HB/HB	0 = Bag label
		0045 = 0.45 µm			LL = 5"			1 = Housing label
		0065 = 0.65 µm			TE = 10"			
					TW = 20"			
					TH = 30"			
					FO = 40"			

# CIL series

Hydrophobic PTFE membrane  
Capsule Filter

# TIn line filter Hydrophobic PTFE membrane

## Capsule Filters bio-burden reduction

### Description and use

The TIn-line capsule filters is family of full size capsule filters available in multiple option of length. The PTFE membrane bio-burden reduction capsule utilizes single layer hydrophobic PTFE membrane. It offers broad chemical compatibility, high flow rate and low extractables.



### Benefits

- 100% integrity tested
- FDA food contact compliant
- Thermal bonding
- Non-fiber releasing

### Typical Applications

- Sterile air feed
- Chemicals
- Pharmaceuticals
- Solvent

### Toxicity

- All materials meet the specifications
- far biological safety per USP Class
- VI -121C° far plastics.

### Filter Area

- 10": 64000cm<sup>2</sup>

### Fitting Option

- 1.5" TC

### Vent/Drain Option

- Hose barb

### Capsule Integrity

- Minimum burst pressure: 123.5psi (8.5barg)

### Construction Materials

- Filter Media: ePTFE membrane
- Media Support: Polypropylene
- Capsule: Polypropylene
- Inner Core: Polypropylene
- Outer Cage: Polypropylene
- Sealing Method: Thermal Bonding

### Sanitization /Sterilizaion

Autoclavable

## Food Safety Compliance

Materials of construction comply with FDA regulations for food and beverage contact use as detailed in the US Code of Federal Regulations, 21CFR. Materials used to produce filter media and hardware are safe for use in contact with foodstuffs in accordance with EU Directives 10/2011

## Capsule Integrity Test Specifications

Pore size	Bubble point	Water Intrusion	Diffusive Flow
0.2 $\mu\text{m}$	$\geq 1.2$ barg(IPA/Water)	$\leq 0.37\text{ml/min}$ @2500mbar/10", 22°C	$\leq 10\text{ml/min}$ @800mbar/10", 22°C

ORDERING INFORMATION								
Product Type	Membrane Type	Membrane pore size	Application	Sterilization	Size	Fittings In/Out	Vent/Drain	Revision
CIL= TIn-Line Capsule Filter	PT = PTFE phobic	0020 = 0.2 $\mu\text{m}$	B =Low Bio	N = Not Sterile	SS = 2.5"	5TC = 1.5" TC	HH = HB/HB	0 = Bag label
					LL = 5"			1 = Housing label
					TE = 10"			
					TW = 20"			
					TH = 30"			
					FO = 40"			

# Sterilizing Filter

# 50 mm Sterilizing Filter

Positive pressure sterilizing filters are widely applicable to sterilizing filtration of aqueous solutions in biological laboratories, and can be used with a peristaltic pump, syringe or other positive pressure device.

GVS 50 mm sterilizing filter is suitable for removing microorganisms, particles, precipitates, and undissolved powders larger than 0.22 µm from aqueous solutions. This product has the stepped hose barb design that ensures stable connection between the filter and the hose. This product is made of 0.22 µm hydrophilic polyethersulfone (PES) membrane and can filter samples up to 8 L in volume. Its excellent filtration performance and reliable sterilization capability provide an efficient solution for the sterilizing filtration of liquids in biological laboratories.



- Membrane diameter: 50 mm
- Membrane pore size: 0.22 µm
- Pattern: Two stepped barbs, filling bell
- Materials:
  - Filter housing: Methyl methacrylate-butadiene-styrene (MBS)
  - Filter Membrane: Hydrophilic polyether sulfone (PES)
  - Filling Bell: Polycarbonate (PC)
  - Filling Bell Cap: Low-density polyethylene (LDPE) Conforming to USP Class VI standards

## Features

- The filter membrane is made of 0.22 µm hydrophilic polyether-sulfone for high throughput and excellent filtration performance
- The products have an effective filtration area of up to 19.9 cm<sup>2</sup>, and can filter samples up to 3.8-8 L in volume
- Maximum operating temperature: 45°C
- Maximum inlet pressure: 3.3 bars (50 psi) at 25°C
- Typical water flow rate: 390 mL/min at 25°C under 15 psi
- It is designed with a filling bell avoiding liquid splashing and pollution
- Stepped hose barb design that ensures stable connection between the filter and the hose
- Filter surface with coding marks, clearly distinguish inlet and outlet
- Sterilized by irradiation, SAL 10<sup>-6</sup>, DNase/RNase-free, Non-pyrogenic, Non-cytotoxic

### Special Tips:

The test results show that the 50 mm sterilizing filters are suitable for most aqueous solutions, such as acetic acid (5%), aqueous buffer, cell media, bleaching agent (5% solution), sodium hydroxide (10%), sulfuric acid (20%). The unlisted reagents should be tested for applicability before use.

Ordering information								
Product Code	Description	Adaptive Tube Diameter	Membrane Pore Size (µm)	Membrane Diameter (mm)	Outer Diameter (mm)	Sterile	Qty. Per Bag	Qty. Per Case
PLAJSF0505SA	PES membrane, two stepped barbs, filling bell	1/2 " -1/4 "ID	0.22	50	62	Y	1	10
PLAJSF1505SA	PES membrane, two stepped barbs, without filling bell	1/2 " -1/4 "ID	0.22	50	62	Y	1	10

# Filter Integrity Tester



# Filter Integrity Tester

GVS filter integrity tester is a new-generation device signed according to the latest GAMP guidelines. It combines intelligent technology with high-sensitivity performance and features large-capacity accurate data recording, exporting, and printing functions. The tester's system is designed for greater stability, making it suitable for most cleanroom environments. The device is lightweight, compact, and ergonomic. Its 10-inch high-definition truecolor touch screen enhances usability and simplifies operation.

Additionally, the equipment complies with GMP guidelines and meets FDA 21 CFR Part 11 requirements for electronic records, and 21 CFR 820.72 for calibration.

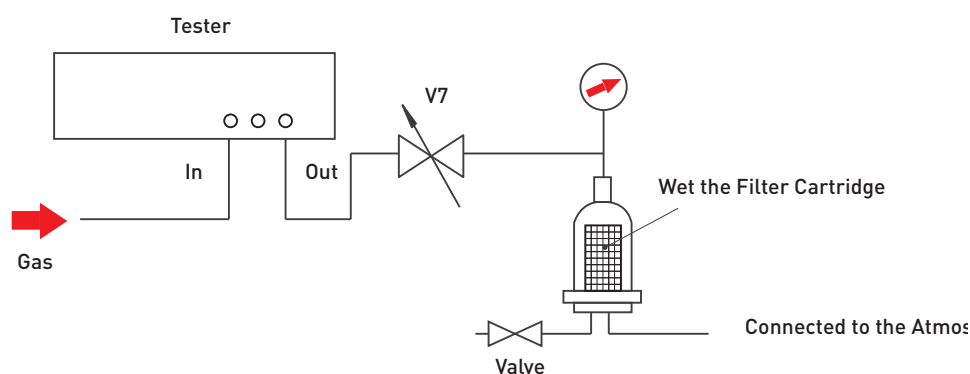


Diagram of Connection Between Tester and Filter

Product Code

ITMDG020

## Features

### ◆ Innovation of Hardware Configuration

- The new high-performance industrial-grade dual-core design CPU significantly improves the data processing speed and capability to ensure the safety, reliability, and efficiency of the instrument during operation.
- The structure is optimized to achieve front IP65 level dust and splash protection, with superior internal sealing for reliable operation in wet environments, enhancing durability.
- The device features a 10-inch true-color touch screen design and a user-friendly interface, allowing for simple, quick, and reliable operation.
- The built-in thermal printer avoids the risk of particle and ink contamination, hardly produces any particles during the printing process, meets the FDA requirements for data recording, can maintain legible writing under the appropriate conditions for more than 10 years, and the printing paper outlet design is ergonomic.
- The instrument supports various industrial buses and analog control ports, tailored to customer needs. It features a rich data interface, including standard digital and analog interfaces (RS232/USB), and offers a USB disk data export function. This function exports not only the original test data but also source data and configuration data, enhancing flexibility.
- The equipment adopts compact and lightweight design, small size, light weight, less energy consumption, easy to carry.

### ◆ Flexible and Steady Operating System Design

- Optimize the Linux system, enhance the autonomy of the instrument, its stability has been fully verified, optimize test operation, and reduce the test time.
- With a perfect boot-up automatic self-check function and comprehensive diagnostic capabilities, the instrument ensures accurate operation.
- The scientific electronic signature system and user hierarchy management mechanism enhance responsibility division, reduce misoperations, and increase standardization and security in laboratory management.
- High-precision sensors and optimized algorithms can extend the gas path to 100m, make the upstream volume test more accurate, and the instrument can better meet the conditions of field use without affecting the test results.
- The operation interface displays the test data and process curve in real time, and monitors the test process throughout the process to ensure the accuracy and controllability of the test.
- Audit trail records can be exportable and be quickly queried record storage 5 years.
- Support database encryption export, which perfectly reflects the data integrity requirements of the instrument.
- Implemented an efficient calibration process to ensure accurate pressure and flow measurements within instrument test thresholds.

### ◆ Comprehensive Testing and Data Processing Capabilities

- Comprehensive and powerful, it covers all existing test methods for filter integrity, including the integrity testing of ultrafiltration systems.
- Advanced digital sensor technology is utilized to significantly enhance the accuracy and consistency of test results, ensuring precise evaluation of the performance indicators of the tested filter.
- Conduct both offline (with battery) and online testing using pressure sensors that provide higher accuracy and lower deviation.
- The tester provides detailed and comprehensive test data, along with complete test curves that accurately reflect various performance indicators of the filter being tested, delivering precise analytical information to users.
- Up to 12 20-inch filters can be tested, which greatly improves the user's work efficiency.

### ◆ Secure and Reliable Data Storage Capability

- Historical records can store up to 300,000 test results, support quick query and generate PDF test reports.
- "Reservation Solution (programs)" design simplifies operation, can establish 1000 sets of pre-stored programs, and fully meets multiple filter types and different test conditions in the field, which is more intelligent, simpler, and accurate.
- User-level management allows for the creation of up to 1,000 user accounts, which can be easily queried.
- The information base can store 5000 fault information and prompt information, and can be quickly queried.

## Parameters

### Dimension

- Weight: 8.2kg
- Depth x Width x Height:  
350mm x 352mm x 178mm  
(13.78in. x 13.86in. x 7.01in.)

### Filter Test Methods

- Bubble point Test
- Extensive Bubble Point Test
- Pressure Holding Test
- Diffusion FLOW Test
- Water Intrusion Test
- Ultrafiltration Membrane Test

### Function Test Methods

- Self-check
- Flow Check Test
- Printer Test
- Network Test

### Other Functions

- Anti-backflow device (optional)
- Cleaning function
- Test program transfer functionality
- Set the transfer function
- Rights management transfer function
- Test result output function
- Backup function

### Pressure Options

- mbar
- kPa
- psi
- kgf/cm<sup>2</sup>

### Communication Ports

- USB
- RS232C
- Ethernet
- Wireless Ethernet Network (optional)

### Test Accuracy

- Upstream Volume Test:  $\pm 4\%$
- Bubble Point Test;  $\pm 50\text{mbar}$
- Diffusion Flow Test:  $\pm 4\%$
- Water Intrusion Test:  $\pm 0.01\text{ml}$

### Test Range

- Bubble Point; 100-8000mbar
- Diffusion Flow: 1-1000ml/min
- Water Intrusion: 0.01-100ml/min

### Electrical Supply

- Voltage: Automatically adjusted between 100-240V AC , external power supply (including EU, UK, US, AU adaptors)
- Input Frequency: 50/60HZ
- Charging Power: 120W
- Spare Battery (optional)

### Operation Conditions

- Operating Pressure: 100-10000 mbar (150psi)
- Dust and Splash Level: IP54, Front is IP65
- Operating Temperature:  $+5^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$
- Storage Temperature:  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  Relative Humidity: 10-80%
- Applicable Environment: Above D level
- Usage: Online/Offline (with battery)

### Display Screen

- Size: 10.1 inch
- Resolution: 1024x768 pixels
- Features: High definition, color, bright background, touch screen

### Information Records

- Reservation Solution(programs): 1000 sets
- History Record Function: No limit on the number of records stored
- Result Backup: Support U disk export data (including test curve)

### Audit Trial

- Audit trail records can exportable and irreversible
- Record storage 5 years

### Printer

- Audit trail records can exportable and irreversible
- Record storage 5 years

### User Management

- Authority Management: Login level 4 permission in full compliance with FDA 21CFR PART 11
- Number of Accounts : 1000

### Operating System

- Linux System (more stable than Windows)

### Applied Scope

- Symmetric and asymmetric membrane test, needle filters, capsule filters, flat filters, cartridge filters, ultrafiltration membrane packages, ultrafiltration columns, various irregular filters

### Calibration Item

- Calibration limits for pressure sensors and flow measurements

### Signal Output

- [4-20]mA, RS485, 12V alarm output



# FibraFlow Tangential Flow



# GVS provides comprehensive solutions on tangential flow filtration

## TFFSPS01000301080N

### 1 Material of hollow fiber membrane

PS	PES(Modified polyethersulfone)
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### 2 MWC0

010M	0.1μm
020M	0.2μm
045M	0.45μm

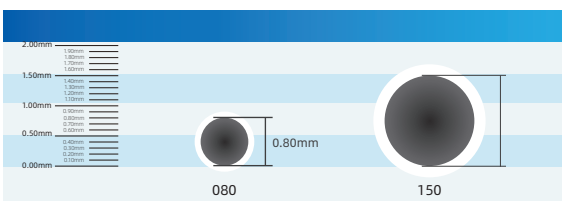
### 3 Passageway length

03	30cm
06	60cm
11	110cm

### 4 Housing Specifications

Code	Scale	Inner diameter(mm)	Membrane area(m <sup>2</sup> )	Passageway length(cm <sup>2</sup> )	Housing length	Interface specifications Inlet/Return Port through Port
01	small scale	3	0.00067	27	32.2	4mm males luer female luer head
02			0.0014	56	62.2	4mm males luer female luer head
03	middle scale	9	0.017	27	31.8	TC25(1/2")
04			0.035	56	61.8	TC25(1/2")
05		19	0.10	27	33.3	TC25(1/2")
06			0.20	56	63.3	TC25(1/2")
07	production	32	0.24	27	31.2	TC50(1-1/2")
08			0.50	56	61.2	TC25(1/2")
09		51	0.53	27	35.5	TC50(1-1/2")
10			1.1	56	65.5	TC25(1/2")
11	production	76	2.7	53	67.9	TC64(2")
12			5.1	101	117.9	TC50(1-1/2")
13		108	5.0	50	70.9	TC64(2")
14			10	101	121.9	TC50(1-1/2")

### 5 Member diameter



### 6 Specification

N	common filter
A	autoclavable filter
SU	single-use, irradiated

# Hollow Fiber Filter



## Applications:

- Lysate clarification
- Upstream cell perfusion culture
- Inclusion body clarification and renaturation
- Nanoparticle Diafiltration and Separation
- Liposome concentration and diafiltration
- Cell concentration, clarification, diafiltration
- Purification, concentration, diafiltration of proteins and nucleic acids
- Virus purification, concentration, diafiltration

The production raw materials of this product meet the requirements of EMEA/410/01.

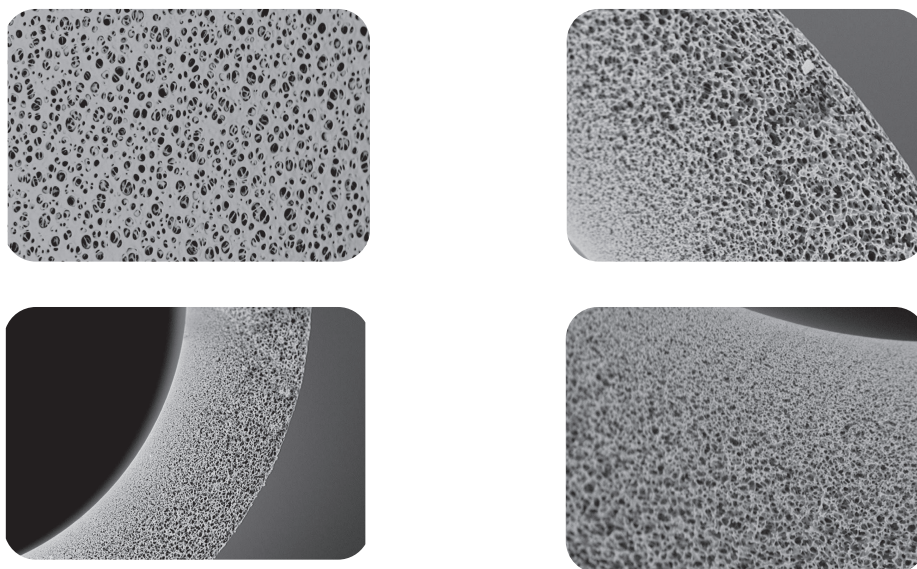
The technical parameters of this product meet the following regulatory requirements:

- Biological Reactivity Test, In Vivo per USP<88>Class VI
- 21CFR177 Indirect Food Additives
- L929 MEM Elution test - ISO 10993-5(Cytotoxicity)
- Hemolysis - Rabbit Blood (direct contact) - ISO 10993-4

The production of this product meets the requirements of 15013485:2016 quality management system.

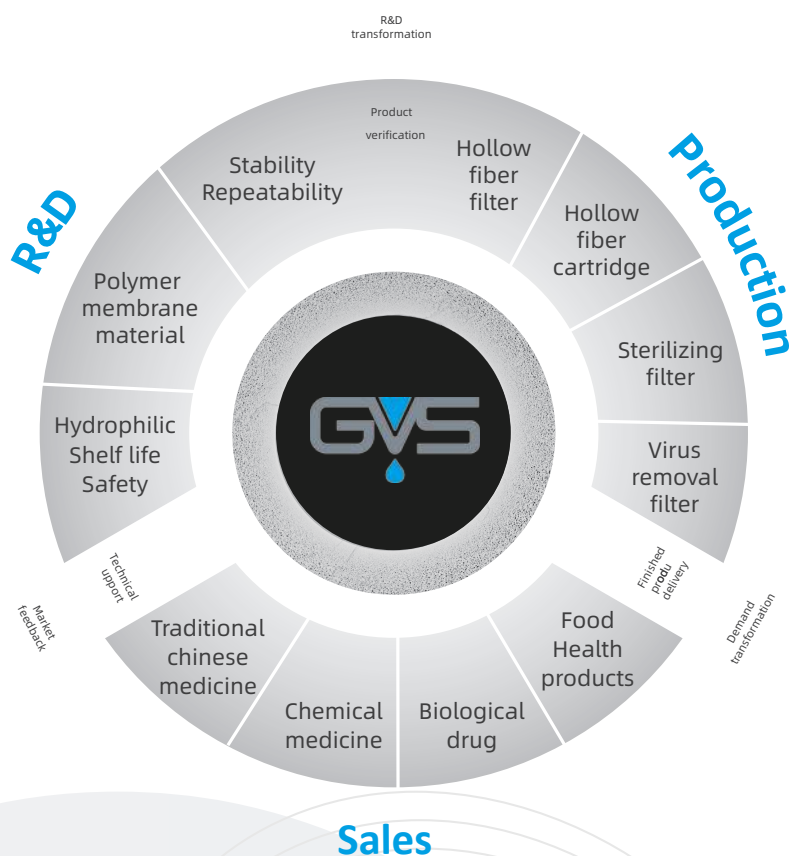
# Hollow Fiber Membrane

GVS hollow fiber filter is made of modified polyethylene inkstone (mPES), which is suitable for filtration of various processes in the pharmaceutical industry (such as biopharmaceuticals, chemical drugs etc.) and the food industry. It can provide stable and reliable filtration performance.



GVS hollow fiber membrane made of modified polyphenol is an asymmetric structure, the membrane layer is dense, and the outer layer is relatively open. Its unique structural design can result in lower bioburden, lower non-specific adsorption, faster filtration rate, higher throughput, and shorter filtration time, so it is very suitable for the pharmaceutical and food industries.

## GVS takes advantage of its professional production process in “membrane” to speed up the development of the biomedical industry



# Chemical Compatibility Table

Code indication: R=recommended; L=limited exposure; NR=not recommended; U=unknown

Solvent / Material	Regenerated cellulose (RC)	Polysulfone(PS) polyethersulfone (PES)	Modified polyethersulfone (mPES)	Polypropylene (PP)	Polyvinylidene fluoride (PVDF)	Nylon (N)	Stainless steel (SS)	Polyester (P)	Fluorocarbons (F)
Ammonia (diluted)	R	R	R	R	R	R	R	U	R
Ammonia (diluted)(10%)	L	R	R	R	R	R	R	U	R
aniline	R	NR	NR	R	R	R	R	U	R
benzaldehyde	R	NR	NR	R	L	U	L	NR	R
phenol (0.5%)	R	R	R	R	R	NR	L	L	R
phenol (10%)	R	L	L	R	R	NR	L	NR	R
propanol	R	R	R	R	R	NR	R	R	R
acetone	R	NR	NR	R	L	R	R	R	R
acetic acid (5%)	R	R	R	R	R	NR	L	L	R
acetic acid (25%)	R	L	L	R	R	NR	L	NR	R
sodium hypochlorite	R	R	L	L	R	NR	NR	U	R
butanol	R	R	R	R	R	L	R	R	U
xylene	R	NR	NR	R	R	R	L	NR	R
dichloromethane	R	L	L	R	R	L	L	NR	R
dimethylformamide	L	NR	NR	R	NR	R	R	NR	U
dimethyl sulfoxide (50%)	U	L	L	U	U	U	U	U	U
glycerin	R	R	R	R	R	R	R	R	R
peracetic acid (0.1N)	U	R	R	U	U	U	U	U	U
perchloric acid(25%)	L	NR	NR	NR	R	NR	L	U	R
toluene	R	NR	NR	R	R	R	R	U	R
cresol	R	NR	NR	R	NR	NR	R	U	R
methanol	R	L	L	R	R	L	R	U	R
formaldehyde (2%)	R	R	R	R	R	R	R	R	R
formaldehyde (30%)	R	R	R	R	R	R	R	R	R
formic acid (25%)	R	R	R	R	R	NR	L	NR	R
formic acid (50%)	R	R	R	R	R	NR	L	NR	R
phosphoric acid (25%)	L	L	L	R	R	L	NR	U	R
sulfuric acid(5%)	R	R	R	R	R	L	NR	NR	R
sulfuric acid(25%)	L	R	R	R	R	NR	NR	NR	R
citric acid(2%)	U	R	R	U	U	U	U	U	U
urea	R	R	R	R	R	R	L	R	R
urea (6N)	R	NR	R	R	R	R	L	R	R
boric acid	R	R	R	R	R	L	L	R	R
hydrofluoric acid (25%)	L	L	L	NR	R	L	NR	NR	R
potassium hydroxide (1N)	R	R	R	R	R	L	L	R	R
potassium hydroxid (25%)	R	R	R	R	R	L	L	R	R
sodium hydroxide (0.1N)	R	R	R	R	R	R	L	R	R
sodium hydroxide (5%)	L	R	R	R	R	R	L	L	R
sodium hydroxide (25%)	L	R	R	R	R	R	L	NR	R
trichloroacetic acid (25%)	NR	R	R	R	R	L	NR	NR	R
trichloromethane (chloroform)	R	NR	NR	R	R	R	R	R	R
triethylamine	R	NR	NR	L	R	R	R	U	R
carbon tetrachloride	R	NR	NR	R	R	NR	L	R	U
tetrahydrofuran	R	NR	NR	R	R	R	R	R	R
diacetone alcohol	R	NR	NR	R	R	R	L	U	R
hydrogen peroxide(30%)	R	L	L	R	R	NR	L	R	R

Solvent \ Material	Regenerated cellulose (RC)	Polysulfone(PS) polyethersulfone (PES)	Modified polyethersulfone (mPES)	Polypropylene (PP)	Polyvinylidene fluoride (PVDF)	Nylon (N)	Stainless steel (SS)	Polyester (P)	Fluorocarbons (F)
petroleum ether	R	R	R	R	R	U	U	R	U
nitric acid(5%)	R	R	R	R	NR	NR	R	R	R
nitric acid (25%)	NR	R	R	R	NR	NR	R	L	R
nitric acid (6N)	NR	L	L	L	R	NR	R	R	R
acetonitrile	R	NR	NR	R	L	U	U	U	U
ether	R	NR	NR	L	L	R	R	NR	R
ethyl acetate	R	NR	NR	R	R	R	L	U	R
amyl acetate (banana oil)	R	NR	NR	R	R	L	R	L	R
ethanol	R	R	R	R	R	R	R	R	R
ethanol(15%)	R	R	R	R	R	R	R	R	R
ethanol(95%)	R	L	L	R	R	R	R	R	R
ethylene glycol	R	R	R	R	R	R	L	R	R
hydrochloric acid (5%)	R	R	R	R	R	L	NR	R	R
hydrochloric acid (25%)	NR	R	R	R	R	NR	NR	R	R
hydrochloric acid(37%)	NR	R	R	L	R	NR	NR	R	R
Isopropyl alcohol	R	R	R	R	R	NR	L	R	R
n-hexane	R	R	R	R	R	L	R	R	R

This table is for informational purposes only and is not a guarantee of chemical compatibility. Variations in temperature, concentration, exposure time and other factors may affect the performance of the product and it is recommended to test under your own conditions.

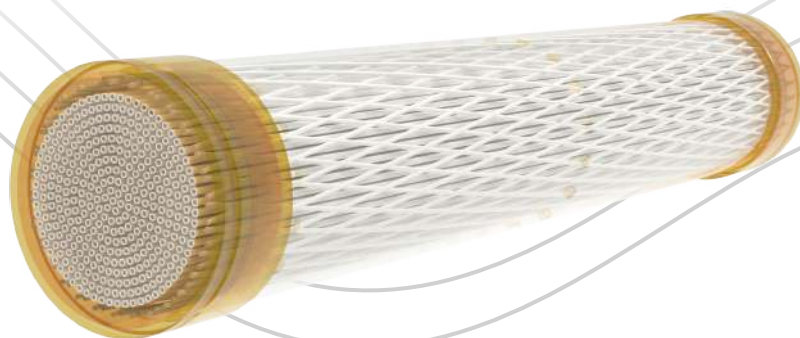
## Quality compliance

GVS hollow fiber filter is designed, developed and produced under the ISO13485 quality management system certified by the authoritative organization. After the production be completed in an ISO CLASS 7 clean room, a quality certificate is issued after the products passing the inspection. Products with good quality specifications can meet the regulatory needs of biopharmaceutical customers.

- USP <88> Class VI Testing: All flow path materials have been tested confirmed to the USP <88> Class VI biocompatibility standards
- Bioburden: Bioburden of a single hollow fiber column < 1000 Colony Forming Units (CFU)
- Pyrogen: Hollow fiber filter production and assembly are carried out under strictly monitored conditions to ensure minimal endotoxin levels, but the product line cannot be guaranteed to be completely pyrogen-free
- Free of Animal Origin: Synthetic and processed materials used in fiber synthesis that do not contain any animal or derived substances
- Shipping and Packaging Verification: GVS has verified product shipping/packaging configurations to ISTA 3A (2008) requirements to ensure that sterile products are adequately protected from damage during shipping
- Product Validity: Non-sterile filters are valid for 5 years from the date of manufacture

# Hollow Fiber Filter

GVS hollow fiber filters are designed for online steam sterilization processes. The mPES hollow fiber membrane has characteristics of high temperature resistance, tolerance to steam circulation operations and recycle.



## Applications:

- Filtration of proteins
- Nucleic acids
- Polysaccharides
- Viruses, etc.

## Features

- Higher membrane strength
- Design for steam-in-place
- Reusable
- Stable performance, long-term work

## Material of Constructions

- Membrane Material: mPES
- Housing: PSU
- Mesh Material: PP
- Shim: PE

## Operating Parameters

- Max. operating pressure: 2bar
- Operating temperature:  $\leq 80^{\circ}\text{C}$
- Operating PH range: 2~14
- Storage: 0.1 N NaOH
- Cleaning methods: 0.5N NaOH, citric acid, and sodium hypochlorite solutions.etc

**TFFS PS 020M 06CC 080 S**

①      ②      ③      ④      ⑤

Material ①	Pore size ②	Housing specifications ③	Fiber ID ④	Sterilization method ⑤
PS=mPES	020M=0.2 $\mu\text{m}$ 045M=0.45 $\mu\text{m}$	06CC	080=0.8 $\mu\text{m}$ 100=1.00 $\mu\text{m}$	s=Steam-in-place

# Reciprocating Tangential Flow Filter

Perfusion system, compared with the classical fed-batch system, could competent higher cell density culture and dramatically improve yield productions. A small-scale bioreactor with a perfusion system can yield equal or even more products than a large-scale bioreactor, achieving more flexibility and lower cost. It has been deeply applied to drive higher yield biopharmaceutical products, including antibodies, recombinant proteins, viral vaccines, VLPs, viral vectors, and bioprocesses of N-1 perfusion system and expansion of stem cells, or CAR-T cells.

GVS have developed hollow fiber filters to resolve the requirements of sterility and long-term work used in the perfusion system. The hollow fiber silk is made of hydrophilic polyether sulfone (mPES) with 0.2  $\mu\text{m}$  pore size.

It has many good characteristics, such as very low protein adsorption, high resistance to contamination, tolerance to humid heat sterilization and steam in place, and standard connection type, making it a great potential alternative consumable for various perfusion systems.

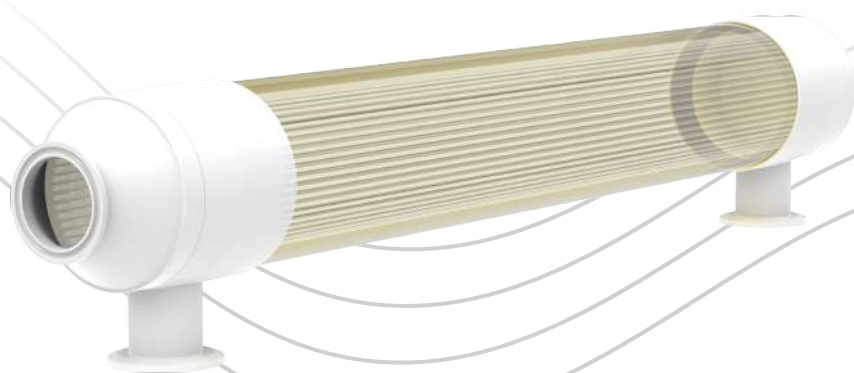


## Features

- Asymmetric membrane structure, better resistance
- mPES, better hydrophilia
- Normalized pore size, more stable
- Open flow path, lower shear force
- Reusable

**TFFS** **R** **020M** **CRT** **030** **04** **A**  
**①** **②** **③** **④** **⑤** **⑥**

Filter series brand ①	Rating ②	Filter style ③	Flowpath length ④	Housing specification (Length* Diameter) ⑤	Type ⑥
R	020M=0.2 $\mu\text{m}$	X=CRT	030=30cm 060=60cm	04=362mm*58mm 06=637mm*75.2mm 10=515mm*175.5mm	A=Autoclavable



## Features

- Asymmetric membrane structure, better resistance
- mPES, better hydrophilia
- Normalized pore size, more stable
- Open flow path, lower shear force
- Single-use

**TFFS** **R** **020M** **FLT** **030** **02** **SU**

**①** **②** **③** **④** **⑤** **⑥**

Filter series brand ①	Rating ②	Filter style ③	Flowpath length ④	Housing specification (Length*Diameater) ⑤	Type ⑥
R	020M=0.2μm	FLT=Filter	030=30cm 060=60cm 110=110cm	02=633mm*23mm 04=362mm*58mm 06=637mm*75.2mm 10=515mm*175.5mm	A=Autoclavable SU=Single-use, irradiated

# Ultra H<sub>2</sub>O

## Terminal Ultrafilter



# GVS Terminal Ultrafilter

The GVS terminal ultrafiltration filter can effectively remove bacteria endotoxins, nucleases, proteases and bacteria from water, making it suitable for areas requiring very high water quality such as ultrapure substance analysis, cell culture, trace detection, and gene sequencing.

## Features

- Removal of bacterial endotoxins: Bacterial endotoxins, which are components of the cell walls of Gram-negative bacteria, primarily consist of lipopolysaccharides. These endotoxins can interact with other molecules or aggregate to form microstructures, causing interference in various analytical and separation methods like cell differentiation, resin purification, electrophoretic analysis, and plasmid extraction.
- Removal of nucleases: Under appropriate water conditions, the GVS terminal ultrafiltration filter can produce nuclease-free water. This process is convenient and safe, and it avoids the CO<sub>2</sub> and alcohol contamination that often results from frequent DEPC treatment.
- Removal of bacteria: It has been verified that the GVS terminal ultrafiltration filter can effectively remove bacteria, allowing for the production of sterile water when used normally in a clean environment.

## Material

Membrane:	Modified polyether sulfone
Housing:	ABS
End base:	ABS
Sealing ring:	Silicone
Sealing material:	Polyurethane

## Parameters

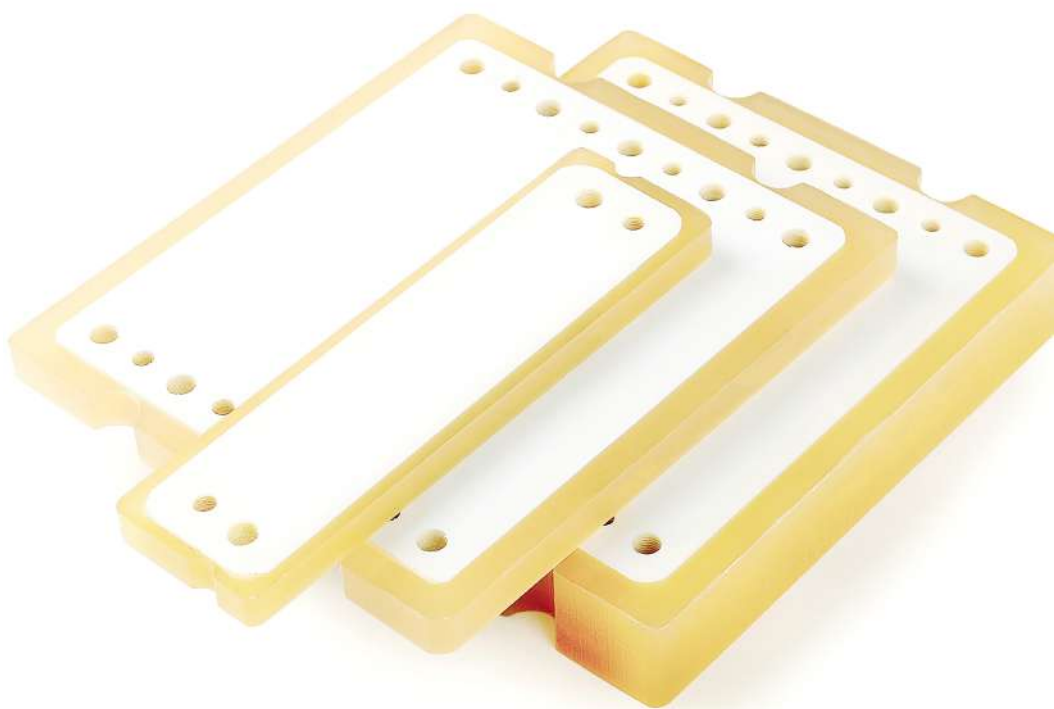
Membrane area:	0.43m <sup>2</sup>
Maximum inlet water temperature:	60°C
Interception molecular:	>15000Da
Bacterial:	<1 cuf/100ml
Bacterial endotoxin:	<0.001EU/ml
RNase:	<1pg/ml
DNase:	<5pg/ml
Replacement cycle:	90 days
Flow rate:	less than 2.5L/min
Inlet size:	1/4" plug in



Product Code

UFSGPES15KD4302S

# CassetteFlow Microfiltration Ultrafiltration



# PESU Ultrafiltration Cassettes

GVS microfiltration & ultrafiltration cassettes have the characteristics of quick and easy installation, thorough and convenient cleaning, low working volume, high efficiency retention and large flux. Linear scale-up of process can be achieved from small to large size cassettes.



Cassettes

## Material

Membrane:	PESU/RC
Support:	Polyester/Polyolefin
Screen mesh:	PP
Sealing gasket:	Medical silica
Material characteristics:	Low adsorption of non-specific protein, high product recovery, high flux, good chemical compatibility

## Parameters

Membrane pore size	ultrafiltration(kd)	microfiltration(μm)
	1/3/5/8/10/30/50/100/300/500/750/1000	0.1/0.22/0.45
Max pressure	≤3bar	
TMP	≤3bar @ 4-45°C	
Working temperature range	4-45°C	
pH	1-14	
Flux test	100% tested before delivery	
Integrity test	100% tested before delivery	

## Cassettes size and the selection

Type	Membrane area	Application	Processing capacity	Remark
SM	0.11m <sup>2</sup>	R&D	200mL-2L	Adapt to stainless steel holder (0.1m <sup>2</sup> )
LM	0.5m <sup>2</sup>	pilot scale test	500mL-10L	Adapt to stainless steel holder (0.5-2.5m <sup>2</sup> )
	1.3m <sup>2</sup>	Pilot scale test, production	1000mL-50L	
	2.5m <sup>2</sup>	Pilot scale test, production	50L more than 50L	

## Ordering information

	Pore size	0.11m <sup>2</sup> filter area	0.5m <sup>2</sup> filter area	1.3m <sup>2</sup> filter area	2.5 m <sup>2</sup> filter area
Microfiltration cassettes	0.1μm	CSTPSUGG010M0011	CSTPSUGG010M0050	CSTPSUGG010M0130	CSTPSUGG010M0250
	0.22μm	CSTPSUGG022M0011	CSTPSUGG022M0050	CSTPSUGG022M0130	CSTPSUGG022M0250
	0.45μm	CSTPSUGG045M0011	CSTPSUGG045M0050	CSTPSUGG045M0130	CSTPSUGG045M0250
Ultrafiltration cassettes	Cut off	0.11m <sup>2</sup> filter area	0.5m <sup>2</sup> filter area	1.3m <sup>2</sup> filter area	2.5 m <sup>2</sup> filter area
	1kd	CSTPSUGG00010011	CSTPSUGG00010050	CSTPSUGG00010130	CSTPSUGG00010250
	3kd	CSTPSUGG00030011	CSTPSUGG00030050	CSTPSUGG00030130	CSTPSUGG00030250
	5kd	CSTPSUGG00050011	CSTPSUGG00050050	CSTPSUGG00050130	CSTPSUGG00050250
	8kd	CSTPSUGG00080011	CSTPSUGG00080050	CSTPSUGG00080130	CSTPSUGG00080250
	10kd	CSTPSUGG00100011	CSTPSUGG00100050	CSTPSUGG00100130	CSTPSUGG00100250
	30kd	CSTPSUGG00300011	CSTPSUGG00300050	CSTPSUGG00300130	CSTPSUGG00300250
	50kd	CSTPSUGG00500011	CSTPSUGG00500050	CSTPSUGG00500130	CSTPSUGG00500250
	100kd	CSTPSUGG01000011	CSTPSUGG01000050	CSTPSUGG01000130	CSTPSUGG01000250
	300kd	CSTPSUGG03000011	CSTPSUGG03000050	CSTPSUGG03000130	CSTPSUGG03000250
	500kd	CSTPSUGG05000011	CSTPSUGG05000050	CSTPSUGG05000130	CSTPSUGG05000250
	750kd	CSTPSUGG07500011	CSTPSUGG07500050	CSTPSUGG07500130	CSTPSUGG07500250
	1000kd	CSTPSUGG10000011	CSTPSUGG10000050	CSTPSUGG10000130	CSTPSUGG10000250

# Sterilo Microbial Test Units



# Sterility Test Canister

## Gamma sterilization

### Features

- Assembled clamps for pipelines are more convenient to use
- Double-layer aseptic packaging facilitates the transfer in the clean room and reduces the pollution during the transfer process
- Gamma ray sterilization, no residue, safe and reliable, avoiding the appearance of false negative results
- $SAL \leq 10^{-6}$
- Ultrasonic welding process ensures tightness and pressure resistance
- 100% passed the airtight performance test
- Microbial retention, microbial growth (sensitivity) and sterility testing ensure that the results of sterility testing are authentic and reliable
- Filter membrane: bubble point method, bacterial retention rate test
- Sterility test 14 day



Schematic diagram	Product code	Inspection style	Bottle/Packaging size
	MTWGNCGN220G	MCE membrane for Glass bottle large volume injection	18 sets/box, 72 sets/carton 12 sets/box, 48 sets/carton
	MTWGNCGN330G		
	MTWGNYGA220G	Nylon membrane for Glass bottle large capacity antibiotic injection	18 sets/box, 72 sets/carton 12 sets/box, 48 sets/carton
	MTWGNYGA330G		
	MTWGNCAN220G	MCE membrane for Ampoule injection	18 sets/box, 72 sets/carton 12 sets/box, 48 sets/carton
	MTWGNCAN330G		
	MTWGNYAA220G	Nylon membrane for Ampoule antibiotic injection	18 sets/box, 72 sets/carton 12 sets/box, 48 sets/carton
	MTWGNYAA330G		
	MTWGNCVN220G	MCE membrane for vial bottle soluble powder	18 sets/box, 72 sets/carton 12 sets/box, 48 sets/carton
	MTWGNCVN330G		
	MTWGNYYA220G	Nylon membrane for vial bottle solution antibiotic powder	18 sets/box, 72 sets/carton 12 sets/box, 48 sets/carton
	MTWGNYYA330G		
	MTWGNCN220G	MCE membrane for soft bag large volume injection	18 sets/box, 72 sets/carton 12 sets/box, 48 sets/carton
	MTWGNCN330G		
	MTWGPPIN220G	PP membrane for insoluble liquid, oily, high visc products	18 sets/box, 72 sets/carton 12 sets/box, 48 sets/carton
	MTWGPPIN330G		
	MTWGNYPN220G	Nylon membrane for powder that need to be dissolved and diluted	18 sets/box, 72 sets/carton 12 sets/box, 48 sets/carton
	MTWGNYPN330G		

\*Available in EO sterilization and the PN ends with "E" instead of "G"

# Sterility Test Canister

## EO sterilization

### Features

- Adopt composite film packaging technology, good air permeability and bacteria resistance
- Ultrasonic welding process is adopted to ensure tightness and pressure resistance
- The pipe is equipped with a stop clip, which is convenient for customers to operate and improve efficiency
- The pump tube is made of composite materials imported from Germany, with high tensile strength and durable, wear and pressure resistant, can ensure the maximum amount of filtrate on successfully completed accomplished
- Filter membrane: bubble point method, bacterial retention rate test
- 100% passed the sealing performance test
- Using advanced gamma ray sterilization, no residue, safe and reliable, avoiding the occurrence of false negative results; SAL  $\leq 10^{-6}$
- Aseptic independent packaging, and double-layer packaging mode, so that through the buffer zone into the aseptic room, to achieve rapid detection
- Through microbial retention, microbial growth promotion (sensitivity) and sterility test, to ensure that the sterility test results are authentic and reliable
- Sterility test: 14-day culture cycle, consistent with pharmacopoeia requirements

### The advantages of gamma ray sterilization compared with other main sterilization methods

Sterilization method	Requirements for packaging	Chemical residue	Temperature increase	Sterilization effect (Whether sterilization can be achieved, That is SAL $\leq 10^{-6}$ )	Post-sterilization treatment method
Gamma rays	No	No	No	Yes	can be used immediately after irradiation
Ethylene oxide	Must use Special packaging material	Yes	Yes	Yes	must be left for at least 48 hours after sterilization. Volatilization reduces residual chemical solvents in the product
High temperature steam	Must use Special packaging material	No	Yes	No	"After sterilization requires a certain amount of time to cool

### Technical parameters

Cups count	2pcs / 3pcs	Cup material	AS
Cup Withstand pressure	0.4MPa	Bottom material	ABS
Cup volume	100ml	Filter/needle holder material	ABS
Filter membrane material	MCE/Nylon/PP 0.45 $\mu$ m	Clips/needle cover/caps material	PP
Filter material	PTFE diameter 25mm, 0.45 $\mu$ m	Caps materials	Silicone

# Sterility Test Pump

## Features

- Straight-line installation of pump tube and pump head automatic opening and closing function
- The pump head opening and closing and the runner running indication function keep the instrument working state at any time
- With stepless speed regulation, speed memory function
- Misoperation of interlock design and alarm prompt function to avoid accidents
- Stainless steel mirror body, small size and beautiful appearance
- Color LCD display, friendly man-machine interface, simple and intuitive, easy to operate
- Rotary coding switch for operation and parameter setting
- Adopting brushless motor, high reliability, long life, no electrical contact spark, good safety and explosion-proof performance
- Forced air cooling to ensure safe use of the product
- The panel type MTWGCP08A/MTWGCP08B is suitable for sterility inspection isolation system installation

## Technical Parameter

Working power:	AC220V /50Hz
Power:	240W
Peristaltic pump speed:	15~240rpm
Runner quantity:	3pc
Height (including bottle rack):	39cm
Dimensions:	36*36*20cm
Weight:	20kg

Product Code

MTWGCP08



# Sterility Test Pump

## Features

- Polishing processing stainless steel case, easy to clean and disinfect
- Large touch LCD screen display, opening and closing of the pump head, running status indication function in time clock function, master the instrument working status at any time
- Toughened glass panel, touch button control, smooth surface, not easy to scratch, easy to clean
- With stepless speed regulation, four - speed direct speed regulation, speed memory function
- Straight type pump pipe installation, the pump head with automatic opening and closing function
- Pump head anti-pinch pipe design
- Misoperation of interlock design and alarm function to avoid accidents
- Adopts brushless dc motor, high reliability, long service life, no electrical contact spark, security, explosion-proof
- Forced air cooling heat dissipation, to ensure the safe use of products

## Technical Parameter

Working power:	AC220V /50Hz
Power:	240W
Peristaltic pump speed:	20~300rpm
Runner quantity:	3pc
Height (including bottle rack):	39cm
Dimensions:	36*28*18.1cm
Weight:	16kg

Product Code

MTWGCP06



# Sterility Test Pump

## Features

- Mini-size design reduces occupying space of super-clean control console and airBow interference
- Waterproof design of equipment body is used to avoid liquid entering into interior of apparatus
- Super-huge LCD can observe running status and clock function
- Direct speed adjustment in 4 levels has memory function for rotating speed
- Adopting brushless motor, high reliability, long life, no electrical contact spark, good safety and explosion-proof performance
- Mirror-polished treatment on stainless steel equipment box is easy to clean and disinfect

## Technical Parameter

Working power:	AC220V /50Hz
Power:	200W
Peristaltic pump speed:	15~240rpm
Runner quantity:	3pc
Height (including bottle rack):	39cm
Dimensions:	32*22*12cm
Weight:	12kg



Product Code

MTWGCP03



# Sterility Test Pump

## Features

- Mini-size design reduces occupying space of super-clean control console and air flow interference
- Waterproof design of equipment body is used to avoid liquid entering into interior of apparatus
- Concise & modern interface is easy to clean
- Knob with unlimited speed adjustment has memory function of rotating speed
- Mirror-polished treatment on stainless steel equipment box is easy to clean and
- Panel type MTWGCP01A/MTWGCP01B for sterility inspection isolation system installation

## Technical Parameter

Working power:	AC220V /50Hz
Power:	150W
Peristaltic pump speed:	15~240rpm
Runner quantity:	3pc
Height (including bottle rack):	39cm
Dimensions:	32*22*13cm
Weight:	12kg

Product Code

MTWGCP01



# Nova Bio Bag Single-Use Solution



# BIOBGWB Single-Use Cell Culture Bag

Single-use processes are widely used in the biopharmaceutical field. These processes are being accepted and used by more and more biopharmaceutical companies due to their advantages of small fixed investment, reduced production time, low contamination risk, and flexible operation. GVS Single-Use Cell Culture Bag is specially designed for common cell culture applications in biopharmaceutical development.

## Applications

Suitable for various cell culture conditions, including scientific research, research and development, in-process seed culture, and new therapies, such as cell therapy. Works with the rocking cell culture systems of GVS or other major suppliers in the market.

## Features:

- Easy use: This product is sterile for single use, providing a safe and suitable environment for cell growth, with the features of easy installation and operation
- Good stability: The bags are composed of co-extruded multi-layer films with excellent flexibility and low gas penetration rate, and are suitable for long-term cell culture
- High cell density: The perfusion function enables the high-density cell culture in a faster manner
- Good biosafety: The material liquid contact layer is composed of EVA copolymers, which are biologically inert and can guarantee process safety
- Flexible application conditions: The bags can be used at 10–50 ° C and under operating pressures up to 0.1 bar; the bags are available in various sizes to support culture volumes from 300 mL to 25 L
- Wide selection of bag type: GVS provides cell bags for standard operation, cell therapy, and complex use; optional selections include the basic configuration, for pH & DO, perfusion, and pH & DO & perfusion
- Flexible customization of tubings, connectors, and other units to meet the needs of customers
- Complete validation documents:
  - Sterility test
  - Bacterial endotoxin test
  - Integrity test
  - Extractable test
  - Chemical compatibility test
- The biocompatibility of gamma-irradiated bags meets the following specifications:
  - 1) ISO 10993-4: In vivo hemolysis test (extraction method)
  - 2) USP87: Cytotoxicity test (extraction method)
  - 3) USP <88> Class VI intramuscular implantation test
  - 4) USP88: Acute intracutaneous test
  - 5) USP88: Acute systemic toxicity test

## Technical Parameters :

FL140C multilayer co-extruded film, EVA liquid contact layer

Item	Test value (> 25 kGy after sterilization by gamma irradiation)	Reference
Physical properties	Haze	89%
	Transmittance	31%
	Transmissivity	88%
	Minimum tolerable temperature	Below -40 °C
	Density	0.96 g/cm <sup>3</sup>
Mechanical properties	Tensile strength	17 MPa
	Elongation at break	800%
	Elastic modulus	94MPa
	Puncture resistance	42N
	Right-angled tearing strength	21N
	Rubbing resistance (23±2° C, 49% RH, rubbed 270 times)	0 hole
	Oxygen permeation after 270 rubs (23±2° C, 0% RH, rubbed 270 times)	3.24 cm <sup>3</sup> /(m <sup>2</sup> · day · 1bar)
Barrier properties	Water vapor transmission rate 1.58g	1.58g/ (m <sup>2</sup> ·day) (23 °C ,100%RH)
	Oxygen permeability	3.40 cm <sup>3</sup> /(m <sup>2</sup> ·day·0.1MPa)
	Carbon dioxide permeability	8.25 cm <sup>3</sup> /(m <sup>2</sup> ·day·0.1MPa)
Pass USP<661> plastic packaging system test		
Comply with USP <788> "Test for Particulate Matter in Injections" , and the result meets the requirements for large-volume (> 100ml) intravenous injection.		
Comply with USP <85> "Test for Bacterial Endotoxin" , and the result is ≤ 0.25 EU/ml , meeting the requirements for hydration products.		
No animal-derived ingredients in the components and during the production process		

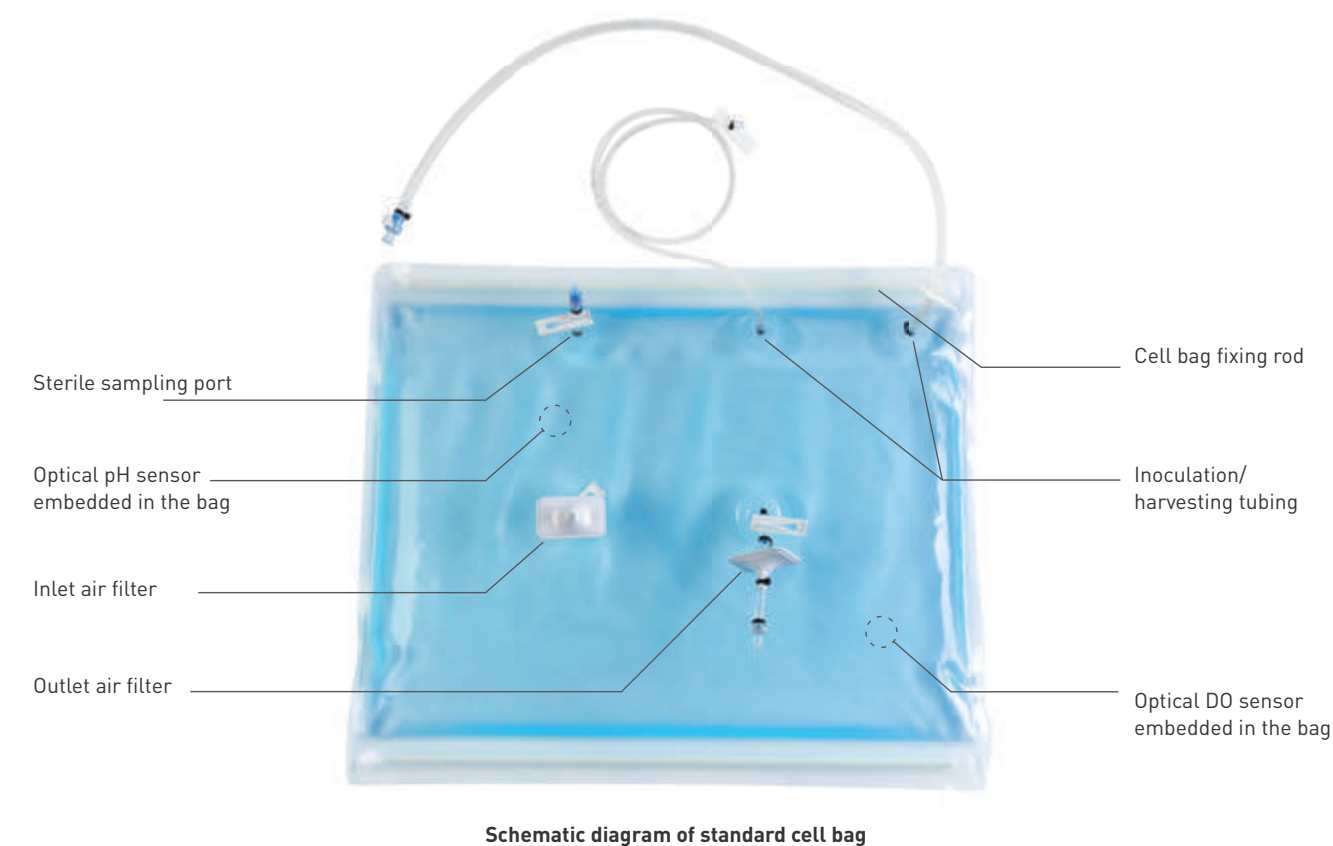
FLCB33 multilayer co-extruded film, LLDPE liquid contact layer

Item		Test value (> 25 kGy after sterilization by gamma irradiation)	Reference
Physical properties	Haze	14.6%	ASTM D1003-21
	Transmittance	91.1%	ASTM D1003-21
	Brittleness temperature by impact	-70 °C / No. of destruction: 0	ASTM D1790-21
	Density	0.928 g/cm <sup>3</sup>	ASTM D792-20
Mechanical properties	Tensile strength	Horizontal: 23.8 MPa	ASTM D882-18
		Vertical: 25.8 MPa	
	Elongation at break	Horizontal: 760%	ASTM D882-18
		Vertical: 770%	
	Tensile Modulus	Horizontal: 319 MPa	ASTM D882-18
		Vertical: 295 MPa	
	Puncture resistance	64N	ASTM F1306-21
Barrier properties	Right-angled tearing strength	36N	ASTM D1004-21
	Water vapor transmission rate (23±0.5°C, 100%RH)	0.442 g/(m <sup>2</sup> ·day)	ASTM F1249-20
	Oxygen permeability (23°C, 50±5%RH)	1.57 cm <sup>3</sup> /(m <sup>2</sup> ·day·bar)	ASTM D1434-82(2015) <sup>e1</sup>
	Carbon dioxide permeability (23°C, 50±5%RH)	1.70 cm <sup>3</sup> /(m <sup>2</sup> ·day·bar)	ASTM D1434-82(2015) <sup>e1</sup>
Pass USP<661> plastic packaging system test			
Comply with USP <788> "Test for Particulate Matter in Injections" , and the result meets the requirements for large-volume ( ≥ 100ml) intravenous injection.			
Comply with USP <85>"Test for Bacterial Endotoxin" , and the result is ≤ 25 EU/ml, meeting the requirements for hydration products.			
No animal-derived ingredients in the components and during the production process			

FL9101 multilayer co-extruded film, ULDPE liquid contact layer

Item		Test value (> 25 kGy after sterilization by gamma irradiation)	Reference
Physical properties	Haze	7%	ASTM D-1003
	Transmittance	97%	ASTM D-1003
	Transmissivity	93%	ASTM D-1003
	Minimum tolerable temperature	-40 °C	ISO 8570
	Density	0.9 g/cm <sup>3</sup>	ASTM D-792
Mechanical properties	Tensile strength	13 Mpa	ASTM D-882
	Elongation at break	300%	ASTM D-882
	Elastic modulus	350 Mpa	ASTM D-882
	Right-angled tearing strength	29N	ASTM D1004-21
Barrier properties	Water vapor transmission rate	0.32 g (m <sup>2</sup> ·day)	ASTM F1249
	Oxygen permeability	< 0.05 cm <sup>3</sup> /(m <sup>2</sup> ·day·bar)	ASTM D3985
	Carbon dioxide permeability	< 0.2 cm <sup>3</sup> /(m <sup>2</sup> ·day·bar)	ASTM F2476
Pass USP <661> plastic packaing system test			
Comply with USP <788> "Test for Particulate Matter in Injections", and the result meets the requirements for large-volume ( ≥ 100ml) intravenous injection.			
Comply with USP <85> "Test for Bacterial Endotoxin", and the result is ≤ 25 EU/ml, meeting the requirements for hydration products.			
No animal-derived ingredients in the components and during the production process			

A standard BIOBGWB Cell Culture Bag consists of the following units:



- Sterile sampling port: for easy and fast sterile connection to downstream operations;
- Inlet and outlet air filter: allows gases to go in and out of the cell bag;
- pH & DO sensor: pH & DO sensor controlled with PID automation can better maintain a suitable cell growth environment;
- Cell bag fixing rod: secures the cell bag to the tray of the rocking bioreactor;
- Inoculation/harvesting tubing: allows medium and cells to go in and out of the cell bag.

Bag volume	Min. to max. culture volume	Compatible system	Corresponding tray
2 L	300 ml–1 L	WB 50	Tray 10/20
10 L	500 ml–5 L		Tray 10/20
20 L	1 L–10 L		Tray 20
22 L	1 L–10 L		Tray 50
50 L	5 L–25 L		Tray 50
100 L	10 L–50 L		Tray 100/200
200 L	20 L–100 L		Tray 200

## Ordering information

### For antibodies and proteins

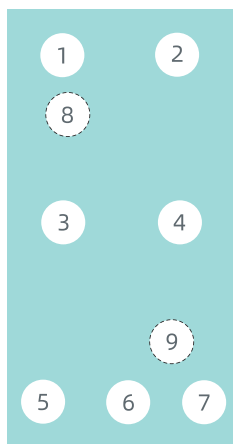
FL140C multilayer co-extruded film, EVA liquid contact layer, soft membrane

Volume	Version	Product code	Configuration	
2 L	Basic cell bag	BIOBGWBAP 002LC101	1.2	NA
			3.4	Air filter
			5.	C-Flex 1/8 id *1/4 od*100 cm, female Luer
			6.	NA
	pH & DO cell bag	BIOBGWBAP 002LC201	1.	C-Flex 1/4 id *7/16 od*100 cm, plug
			2.	NA
			3.4	Air filter
			5.	Silicone 1/4 id *7/16 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag
	Perfusion cell bag	BIOBGWBAP 002LC304	1.	Y-connector (attached to perfusion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug
			2.	C-Flex 1/8 id*1/4 od*100 cm, female Luer Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer
			3.4	Air filter
			5.	Silicone 1/4 id*7/16 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag
	pH & DO & Perfusion cell bag	BIOBGWBAP 002LC404	1.	Y-connector (attached to perfusion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug
			2.	C-Flex 1/8 id*1/4 od*100 cm, female Luer Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer
			3.4	Air filter
			5.	Silicone 1/4 id*7/16 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag

\* All connected by non-adjustable straight connectors

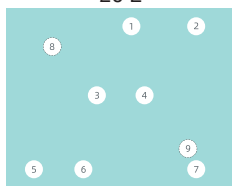
\* The minimum culture volume for 2 L pH & DO & perfusion cell bag is 400 mL

Volume	Version	Product code	Configuration			
10 L	Basic cell bag	BIOBGWBAP 010LC101	1.2	NA		
			3.4	Air filter	7.	Silicone 3/16 id*3/8 od*5 cm, needleless sampling
			5.	C-Flex 1/4 id *7/16 od*100 cm, female MPC		
			6.	C-Flex 1/8 id *1/4 od*100 cm, female Luer	8.9	NA
10 L	pH & DO cell bag	BIOBGWBAP 010LC201	1.	NA	6.	Silicone 3/16 id *3/8 od*5 cm, needleless sampling
			2.	C-Flex 1/4 id *7/16 od*100 cm, plug	7.	C-Flex 1/8 id*1/4 od*100 cm, female Luer
			3.4	Air filter		C-Flex 1/8 id*1/4 od*100 cm, female Luer
			5.	Silicone 1/4 id *7/16 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag	8.9	pH, DO sensor
10 L	Perfusion cell bag	BIOBGWBAP 010LC304	1.	Y-connector (attached to perfu-sion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug	5.	Silicone 1/4 id*7/16 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag
			2.	C-Flex 1/4 id*7/16 od*100 cm, plug	6.	Silicone 3/16 id*3/8 od*5 cm, needleless sampling
			3.4	Air filter	7.	C-Flex 1/8 id*1/4 od*100 cm, female Luer
						Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer NA
10 L	pH & DO & Perfusion cell bag	BIOBGWBAP 010LC404	1.	Y-connector (attached to perfu-sion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug	5.	Silicone 1/4 id*7/16 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag
			2.	C-Flex 1/4 id*7/16 od*100 cm, plug	6.	Silicone 3/16 id*3/8 od*5 cm, needleless sampling
			3.4	Air filter	7.	C-Flex 1/8 id*1/4 od*100 cm, female Luer
						Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer
					8.9	pH, DO sensor



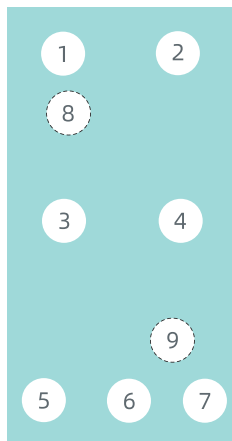
\* All connected by non-adjustable straight connectors

Volume	Version	Product code	Configuration	
20 L	Basic cell bag	BIOBGWBAP 020LC101	1.2	NA
			3.4	Air filter
			5.	C-Flex 1/4 id *7/16 od*100 cm, female MPC
	pH & DO cell bag	BIOBGWBAP 020LC201	6.	C-Flex 1/8 id *1/4 od*100 cm, female Luer
			7.	Silicone 3/16 id*3/8 od*5 cm, needleless sampling
			8.9	NA
	Perfusion cell bag	BIOBGWBAP 020LC304	1.	NA
			2.	C-Flex 3/8 id *5/8 od*100 cm, plug
			3.4	Air filter
	pH & DO & Perfusion cell bag	BIOBGWBAP 020LC404	5.	Silicone 3/8 id *5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag
			6.	C-Flex 1/8 id*1/4 od*100 cm, female Luer
			8.9	pH, DO sensor

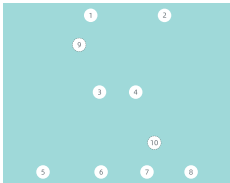


\* All connected by non-adjustable straight connectors

Volume	Version	Product code	Configuration	
22 L	Basic cell bag	BIOBGWBAP 022LC101	1.2	NA
			3.4	Air filter
			5.	C-Flex 1/4 id *7/16 od*100 cm, female MPC
			6.	C-Flex 1/8 id *1/4 od*100 cm, female Luer
22 L	pH & DO cell bag	BIOBGWBAP 022LC201	1.	C-Flex 3/8 id *5/8 od*100 cm, plug
			2.	NA
			3.4	Air filter
			5.	Silicone 3/8 id *5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag
22 L	Perfusion cell bag	BIOBGWBAP 022LC303	1.	Y-connector (attached to perfu-sion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug
			2.	C-Flex 3/8 id*5/8 od*100 cm, plug
			3.4	Air filter
			5.	Silicone 3/8 id*5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag
22 L	pH & DO & Perfusion cell bag	BIOBGWBAP 022LC404	1.	Y-connector (attached to perfu-sion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug
			2.	C-Flex 3/8 id*5/8 od*100 cm, plug
			3.4	Air filter
			5.	Silicone 3/8 id*5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag



\* All connected by non-adjustable straight connectors

Volume	Version	Product code	Configuration	
 <p>50 L</p>	Basic cell bag	BIOBGWBAP 050LC101	1.2 NA	
			3.4 Air filter	7. Silicone 3/16 id*3/8 od*5 cm, needleless sampling
			5. C-Flex 1/8 id *1/4 od*100 cm, female MPC	8. NA
		BIOBGWBAP 050LS101	6. C-Flex 1/4 id *7/16 od*100 cm, female Luer	9.10 NA
	pH & DO cell bag		1.8 C-Flex 3/8 id *5/8 od*100 cm, plug	
		BIOBGWBAP 050LC201	2. NA	7. C-Flex 1/8 id*1/4 od*100 cm, female Luer
			3.4 Air filter	
			5. Silicone 3/8 id *5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag	C-Flex 1/8 id*1/4 od*100 cm, female Luer
		BIOBGWBAP 050LS201	6. Silicone 3/16 id *3/8 od*5 cm, needleless sampling	9.10 pH, DO sensor
	Perfusion cell bag		1. Y-connector (attached to perfu-sion filter)	
		BIOBGWBAP 050LC304	C-Flex 1/8 id*1/4 od*6 cm, needleless sampling	6. Silicone 3/16 id*3/8 od*5 cm, needleless sampling
			Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug	7. NA
			2. C-Flex 3/8 id*5/8 od*100 cm, plug	8. C-Flex 1/8 id*1/4 od*100 cm, female Luer
	pH & DO & Perfusion cell bag	BIOBGWBAP 050LS304	3.4 Air filter	Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer
			5. Silicone 3/8 id*5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag	9.10 NA
			1. Y-connector (attached to perfu-sion filter)	
		BIOBGWBAP 050LC404	C-Flex 1/8 id*1/4 od*6 cm, needleless sampling	6. Silicone 3/16 id*3/8 od*5 cm, needleless sampling
			Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug	7. NA
			2. C-Flex 3/8 id*5/8 od*100 cm, plug	8. C-Flex 1/8 id*1/4 od*100 cm, female Luer
		BIOBGWBAP 050LS404	3.4 Air filter	Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer
			5. Silicone 3/8 id*5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag	9.10 NA

\* All connected by non-adjustable straight connectors

Volume	Version	Product code	Configuration			
100 L	Basic cell bag	BIOBGWBAP 100LC101	1.	Silicone 3/8 id* 5/8 od* 150 c & C-Flex *50 cm, plug		
			2.3.4	Air filter		
			5.	Silicone 3/8 id* 5/8 od* 150 cm, plug, extended tube inside the bag	7.	Silicone 1/4 id* 7/16 od* 5 cm needlessly sampling
			6.	Silicone 1/8 id* 1/4 od* 150 cm & C-Flex *50 cm, female Luer and plug	8.	C-Flex 1/4 id* 7/16 od* 200 c plug
200 L	pH & DO cell bag	BIOBGWBAP 100LC201	9.	Silicone 1/8 id* 1/4 od * 150 cm & C-Flex *50 cm, female Luer and plug	10.11	NA
			1.	Silicone 3/8 id* 5/8 od* 150 c & C-Flex *50 cm, plug		
			2.3.4	Air filter		
			5.	Silicone 3/8 id* 5/8 od* 150 cm, plug, extended tube inside the bag	7.	Silicone 1/4 id* 7/16 od* 5 cm needlessly sampling
200 L	Basic cell bag	BIOBGWBAP 200LC101	6.	Silicone 1/8 id* 1/4 od* 150 cm & C-Flex *50 cm, female Luer and plug	8.	C-Flex 1/4 id* 7/16 od* 200 c plug
			9.	Silicone 1/8 id* 1/4 od * 150 cm & C-Flex *50 cm, female Luer and plug	10.11	pH,DO sensor
			1.	Silicone 3/8 id* 5/8 od* 150 c & C-Flex *50 cm, plug		
			2.3.4	Air filter		
200 L	pH & DO cell bag	BIOBGWBAP 200LC201	5.	Silicone 3/8 id* 5/8 od* 150 cm, plug, extended tube inside the bag	7.	Silicone 1/4 id* 7/16 od* 5 cm needlessly sampling
			6.	Silicone 1/8 id* 1/4 od* 150 cm & C-Flex *50 cm, female Luer and plug	8.	C-Flex 1/4 id* 7/16 od* 200 c plug
			9.	Silicone 1/8 id* 1/4 od * 150 cm & C-Flex *50 cm, female Luer and plug	10.11	NA
			1.	Silicone 3/8 id* 5/8 od* 150 c & C-Flex *50 cm, plug		
200 L	pH & DO cell bag	BIOBGWBAP 200LC201	2.3.4	Air filter		
			5.	Silicone 3/8 id* 5/8 od* 150 cm, plug, extended tube inside the bag	7.	Silicone 1/4 id* 7/16 od* 5 cm needlessly sampling
			6.	Silicone 1/8 id* 1/4 od* 150 cm & C-Flex *50 cm, female Luer and plug	8.	C-Flex 1/4 id* 7/16 od* 200 c plug
			9.	Silicone 1/8 id* 1/4 od * 150 cm & C-Flex *50 cm, female Luer and plug	10.11	pH,DO sensor

## Ordering information

### For antibodies and proteins

FL140C multilayer co-extruded film, EVA liquid contact layer, soft membrane

Volume	Version	Product code	Configuration			
2 L	Basic cell bag	BIOBGWBAP 002LC102	1.2	NA		
			3.4	Air filter	7.	Silicone 3/16 id *3/8od *5 cm, needleless sampling
			5.	C-Flex 1/8 id *1/4 od*100 cm, female Luer and plug	8.9	NA
			6.	NA		
2 L	pH & DO cell bag	BIOBGWBAP 002LC202	1.	C-Flex 1/4 id *7/16 od*100 cm, plug	6.	Silicone 3/16 id *3/8 od*5 cm, needleless sampling
			2.	NA	7.	C-Flex 1/8 id*1/4 od*100 cm, female Luer and plug
			3.4	Air filter		
			5.	Silicone 1/4 id *7/16 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag	8.9	pH, DO sensor
2 L	Perfusion cell bag	BIOBGWBAP 002LC305	1.	Y -connector (attached to perfusion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex *60cm, plug	5.	Silicone 1/4 id*7/16 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag
			2.	C-Flex 1/8 id*1/4 od*100 cm, female Luer and plug Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer and plug	6.	Silicone 3/16 id*3/8 od*5 cm, needleless sampling
					7.	NA
					8.9	NA
2 L	pH & DO & Perfusion cell bag	BIOBGWBAP 002LC405	3.4	Air filter		
			1.	Y-connector (attached to perfusion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug	5.	Silicone 1/4 id*7/16 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag
			2.	C-Flex 1/8 id*1/4 od*100 cm, female Luer and plug Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer and plug	6.	Silicone 3/16 id*3/8 od*5 cm, needleless sampling
					7.	NA
2 L			8.9	pH, DO sensor		
			3.4	Air filter		

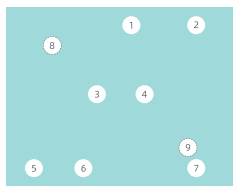
\* All connected by non-adjustable straight connectors

\* The minimum culture volume for 2 L pH & DO & perfusion cell bag is 400 mL

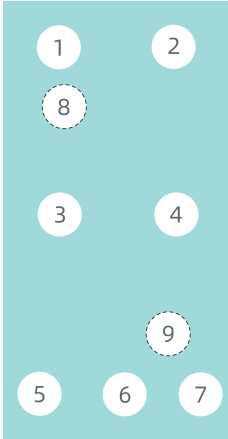
Volume	Version	Product code	Configuration			
10 L	Basic cell bag	BIOBGWBAP 010LC102	1.2	NA		
			3.4	Air filter		
			5.	C-Flex 1/4 id *7/16 od*100 cm female MPC	7.	Silicone 3/16 id *3/8od *5cm needleless sampling
			6.	C-Flex 1/8 id *1/4 od*100 cm female Luer and plug	8.9	NA
10 L	pH & DO cell bag	BIOBGWBAP 010LC202	1.	NA	6.	Silicone 3/16 id *3/8 od*5 c needleless sampling
			2.	C-Flex 1/4 id *7/16 od*100 cm plug	7.	C-Flex 1/8 id*1/4 od*100 cm, female Luer and plug
			3.4	Air filter		
			5.	Silicone 1/4 id *7/16 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag		C-Flex 1/8 id*1/4 od*100 cm, female Luer and plug
					8.9	pH, DO senso
10 L	Perfusion cell bag	BIOBGWBAP 010LC305	1.	Y -connector (attached to perfusion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm &C-Flex *60cm, plug	5.	Silicone 1/4 id*7/16 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag
			2.	C-Flex 1/8 id*1/4 od*100 cm female Luer and plug	6.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
			3.4	Air filter	7.	C-Flex 1/8 id*1/4 od*100 cm female Luer and plug Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer and plug
					8.9	NA
10 L	pH & DO & Perfusion cell bag	BIOBGWBAP 010LC405	1.	Y-connector (attached to perfusion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug	5.	Silicone 1/4 id*7/16 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag
			2.	C-Flex 1/8 id*1/4 od*100 cm female Luer and plug Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer and plug	6.	Silicone 3/16 id*3/8 od*5 cm, needleless sampling
			3.4	Air filter	7.	C-Flex 1/8 id*1/4 od*100 cm female Luer and plug Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer and plug
					8.9	pH, DO senso

\* All connected by non-adjustable straight connectors

Volume	Version	Product code	Configuration	
20 L	Basic cell bag	BIOBGWBAP 020LC102	1.2	NA
			3.4	Air filter
			5.	C-Flex 1/4 id *7/16 od*100 cm female MPC
			6.	C-Flex 1/8 id *1/4 od*100 cm female Luer and plug
20 L	pH & DO cell bag	BIOBGWBAP 020LC202	1.	NA
			2.	C-Flex 3/8 id *5/8 od*100 cm plug
			3.4	Air filter
			5.	Silicone 3/8 id *5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag
20 L	Perfusion cell bag	BIOBGWBAP 020LC305	1.	Y-connector (attached to perfusion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug
			2.	C-Flex 3/8 id*5/8 od*100 cm plug
			3.4	Air filter
			5.	Silicone 3/8 id*5/8 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag
20 L	pH & DO & Perfusion cell bag	BIOBGWBAP 020LC405	1.	Y-connector (attached to perfusion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug
			2.	C-Flex 3/8 id*5/8 od*100 cm, plug
			3.4	Air fil
			5.	Silicone 3/8 id*5/8 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag



\* All connected by non-adjustable straight connectors

Volume	Version	Product code	Configuration	
22 L 	Basic cell bag	BIOBGWBAP 022LC102	1.2 NA 3.4 Air filter 5. C-Flex 1/4 id *7/16 od*100 cm female MPC 6. C-Flex 1/8 id *1/4 od*100 cm female Luer and plug	7. Silicone 3/16 id*3/8 od*5 cm needleless sampling 8.9 NA
	pH & DO cell bag	BIOBGWBAP 022LC202	1. C-Flex 1/4 id *7/16 od*100 cm plug 2. NA 3.4 Air filter 5. Silicone 1/4 id *7/16 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag	6. Silicone 3/16 id *3/8 od*5 cm needleless sampling 7. C-Flex 1/8 id*1/4 od*100 cm, female Luer and plug C-Flex 1/8 id*1/4 od*100 cm, female Luer and plug 8.9 pH, DO senso
	Perfusion cell bag	BIOBGWBAP 022LC302	1. Y-connector (attached to perfusion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug 2. C-Flex 3/8 id*5/8 od*100 cm plug 3.4 Air filter	5. Silicone 3/8 id*5/8 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag 6. Silicone 3/16 id*3/8 od*5 cm needleless sampling 7. C-Flex 1/8 id*1/4 od*100 cm female Luer and plug Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer and plug 8.9 NA
	pH & DO & Perfusion cell bag	BIOBGWBAP 022LC402	1. Y-connector (attached to perfusion filter) C-Flex 1/8 id*1/4 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug 2. C-Flex 3/8 id*5/8 od*100 cm plug 3.4 Air filter	5. Silicone 3/8 id*5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag 6. Silicone 3/16 id*3/8 od*5 cm, needleless sampling 7. C-Flex 1/8 id*1/4 od*100 cm female Luer and plug Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer and plug 8.9 pH, DO senso

\* All connected by non-adjustable straight connectors

Volume	Version	Product code	Configuration
50 L	Basic cell bag	BIOBGWBAP 050LC102	1.2 NA
		3.4	Air filter
		5.	C-Flex 1/8 id *1/4 od*100 cm female MPC and plug
		7.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
	pH & DO cell bag	BIOBGWBAP 050LS102	8. NA
		6.	C-Flex 1/4 id *7/16 od*100 cm female Luer and plug
	Perfusion cell bag	9.10	NA
		1.8	C-Flex 3/8 id *5/8 od*100 cm plug
		BIOBGWBAP 050LC202	2. NA
		3.4	Air filter
50 L	pH & DO cell bag	5.	Silicone 3/8 id *5/8 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag
		7.	C-Flex 1/8 id*1/4 od*100 cm female Luer and plug
		9.10	pH, DO sensor
		BIOBGWBAP 050LS202	6.
	Perfusion cell bag	1.	Y-connector (attached to perfusion filter)
		BIOBGWBAP 050LC305	6.
		7.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
		8.	NA
	pH & DO & Perfusion cell bag	5.	C-Flex 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug
		2.	C-Flex 3/8 id*5/8 od*100 cm plug
		BIOBGWBAP 050LS305	3.4
		5.	Air filter
50 L	pH & DO & Perfusion cell bag	5.	Silicone 3/8 id*5/8 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag
		6.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
		7.	NA
		8.	C-Flex 1/8 id*1/4 od*100 cm female Luer and plug
	pH & DO cell bag	2.	Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, plug
		BIOBGWBAP 050LC405	3.4
		5.	Air filter
		9.10	NA
	Perfusion cell bag	2.	C-Flex 3/8 id*5/8 od*100 cm plug
		BIOBGWBAP 050LS405	3.4
		5.	Silicone 3/8 id*5/8 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag
		9.10	NA

\* All connected by non-reducing straight connectors

Volume	Version	Product code	Configuration			
100 L	Basic cell bag	BIOBGWBAP 100LC102	1.	Silicone 3/8 id* 5/8 od* 150 cm & C-Flex *50 cm, plug		
			2.3.4	Air filter		
			5.	Silicone 3/8 id* 5/8 od* 150cm needlessly sampling & C-Flex *50 cm, plug, extended tube inside the bag		
100 L	pH & DO cell bag	BIOBGWBAP 100LC202	6.	Silicone 1/8 id* 1/4 od* 150 cm & C-Flex *50 cm, female Luer and plug		
			7.	Silicone 1/4 id* 7/16 od* 5 cm needlessly sampling		
			8.	C-Flex 1/4 id* 7/16 od* 200 cm plug		
200 L	Basic cell bag	BIOBGWBAP 200LC102	9.	Silicone 1/8 id* 1/4 od* 150cm & C-Flex *50 cm, plug		
			10.11	NA		
			1.	Silicone 3/8 id* 5/8 od* 150 cm & C-Flex *50 cm, plug		
200 L	pH & DO cell bag	BIOBGWBAP 200LC202	2.3.4	Air filter		
			5.	Silicone 3/8 id* 5/8 od* 150cm needlessly sampling & C-Flex *50 cm, plug, extended tube inside the bag		
			6.	Silicone 1/8 id* 1/4 od* 150cm & C-Flex *50 cm, female Luer and plug		
200 L	Basic cell bag	BIOBGWBAP 200LC102	7.	Silicone 1/4 id* 7/16 od* 5 cm needlessly sampling		
			8.	C-Flex 1/4 id* 7/16 od* 200 cm plug		
			9.	Silicone 1/8 id* 1/4 od* 150 cm & C-Flex *50 cm, plug		
200 L	pH & DO cell bag	BIOBGWBAP 200LC202	10.11	pH, DO sensor		
			1.	Silicone 3/8 id* 5/8 od* 150 cm & C-Flex *50 cm, plug		
			2.3.4	Air filter		
200 L	Basic cell bag	BIOBGWBAP 200LC102	5.	Silicone 3/8 id* 5/8 od* 150cm needlessly sampling & C-Flex *50 cm, plug, extended tube inside the bag		
			6.	Silicone 1/8 id* 1/4 od* 150 cm & C-Flex *50 cm, female Luer and plug		
			7.	Silicone 1/4 id* 7/16 od* 5 cm needlessly sampling		
200 L	pH & DO cell bag	BIOBGWBAP 200LC202	8.	C-Flex 1/4 id* 7/16 od* 200 cm plug		
			9.	Silicone 1/8 id* 1/4 od* 150cm & C-Flex *50 cm, plug		
			10.11	pH, DO sensor		

## Ordering information

### For novel therapies

FL140C multilayer co-extruded film, EVA liquid contact layer, soft membrane

Volume	Version	Product code	Configuration	
2 L	Basic cell therapy bag	BIOBGWBCT 002LC101	1.2	NA
			3.4	Air filter
			5.	Silicone 1/8 id *1/4 od*70 cm & PVC 1/8 id *3/16 od *50 cm, female Luer and plug
			6.	NA
	pH & DO cell therapy bag	BIOBGWBCT 002LC201	7.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
			8.9	NA
			1.	NA
			2.	VC 1/8 id*3/16 od*100 cm, female Luer and plug Silicone 1/8 id *1/4 od*100 cm & PVC 1/8 id*3/16 od*60 cm, female Luer and plug
	Perfusion cell therapy bag	BIOBGWBCT 002LC303	3.4	Air filter
			5.	Silicone 1/4 id *7/16 od*100cm & PVC*60 cm, plug, extended tube inside the bag
			6.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
			7.	NA
	pH & DO & Perfusion cell therapy bag	BIOBGWBCT 002LC403	8.9	pH, DO senso
			1.	Y-connector (attached to perfusion filter) PVC 1/8 id*3/16 od*6 cm, needleless sampling
			5.	Silicone 1/8 id*1/4 od*100 cm & PVC 1/8 id *3/16 od *60 cm, female Luer and plug
			6.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
			7.	NA
			8.9	NA
			3.4	Air filter
			1.	Y-connector (attached to perfusion filter) PVC 1/8 id*3/16 od*6 cm, needleless sampling
			5.	Silicone 1/8 id*1/4 od*100 cm & PVC 1/8 id *3/16 od *60 cm, female Luer and plug
			6.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
			7.	NA
			8.9	pH, DO senso
			3.4	Air filter

\* All connected by non-adjustable straight connectors

\* The minimum culture volume for 2 L pH & DO & perfusion cell bag is 400 ml

Volume	Version	Product code	Configuration	
5 L	Basic cell therapy bag	BIOBGWBCT 005LC101	1.2	NA
			3.4	Air filter
			5.	Silicone 1/8 id *1/4 od*70 cm & PVC 1/8 id *3/16 od *50 cm, female Luer and plug
			6.	NA
5 L	pH & DO cell therapy bag	BIOBGWBCT 005LC201	7.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
			8.9	NA
			1.	NA
			2.	VC 1/8 id*3/16 od*100 cm, female Luer and plug Silicone 1/8 id *1/4 od*100 cm & PVC 1/8 id*3/16 od*60 cm, female Luer and plug
5 L	Perfusion cell therapy bag	BIOBGWBCT 005LC303	3.4	Air filter
			5.	Silicone 1/4 id *7/16 od*100cm & PVC*60 cm, plug, extended tube inside the bag
			6.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
			7.	NA
5 L	pH & DO & Perfusion cell therapy bag	BIOBGWBCT 005LC403	8.9	NA
			1.	Y-connector (attached to perfusion filter) PVC 1/8 id*3/16 od*6 cm, needleless sampling
			5.	Silicone 1/4 id*7/16 od*100 cm & PVC*60 cm, plug, extended tube inside the bag
			6.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
5 L	pH & DO & Perfusion cell therapy bag	BIOBGWBCT 005LC403	7.	NA
			8.9	pH, DO senso
			2.	VC 1/8 id*3/16 od*100 cm, female Luer and plug Silicone 1/8 id *1/4 od*100 cm & PVC 1/8 id*3/16 od*60 cm, female Luer and plug
			3.4	Air filter

\* All connected by non-reducing straight connectors

Volume	Version	Product code	Configuration	
10 L	Basic cell therapy bag	BIOBGWBCT 010LC101	1.2	NA
			3.4	Air filter
			5.	Silicone 1/4 id *7/16 od*70 cm & PVC*50 cm, female Luer and plug
			6.	Silicone 1/8 id *1/4 od*70 cm & PVC 1/8 id *3/16 od *50 cm, female Luer and plug
10 L	pH & DO cell therapy bag	BIOBGWBCT 010LC201	7.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
			8.9	NA
			1.	NA
			2.	VC 1/8 id*3/16 od*100 cm, female Luer and plug Silicone 1/8 id *1/4 od*100 cm & PVC 1/8 id*3/16 od*60 cm, female Luer and plug
10 L	Perfusion cell therapy bag	BIOBGWBCT 010LC303	3.4	Air filter
			5.	Silicone 1/4 id *7/16 od*100 & PVC*60 cm, plug, extended tube inside the bag
			6.	Silicone 3/16 id *3/8 od*5 cm needleless sampling
			7.	NA
10 L	pH & DO & Perfusion cell therapy bag	BIOBGWBCT 010LC403	8.9	pH, DO senso
			5.	Y-connector (attached to perfusion filter) PVC 1/8 id*3/16 od*6 cm, needleless sampling
			6.	Silicone 1/8 id*1/4 od*100 cm & PVC 1/8 id *3/16 od *60 cm, female Luer and plug
			7.	VC 1/4 id*7/16 od*100 cm, plug
10 L	pH & DO & Perfusion cell therapy bag	BIOBGWBCT 010LC403	3.4	Air filter
			5.	Silicone 1/4 id*7/16 od*100cm & PVC*60 cm, plug, extended tube inside the bag Silicone 3/16 id*3/8 od*5 cm, needleless sampling
			6.	PVC 1/8 id*3/16 od*100 cm, female Luer and plug Silicone 1/8 id *1/4 od*100 cm & PVC 1/8 id*3/16 od*60 cm, female Luer and plug
			8.9	NA
10 L	pH & DO & Perfusion cell therapy bag	BIOBGWBCT 010LC403	5.	Silicone 1/4 id*7/16 od*100cm & PVC*60 cm, plug, extended tube inside the bag Silicone 3/16 id*3/8 od*5 cm, needleless sampling
			6.	PVC 1/8 id*3/16 od*100 cm, female Luer and plug Silicone 1/8 id *1/4 od*100 cm & PVC 1/8 id*3/16 od*60 cm, female Luer and plug
			7.	VC 1/4 id*7/16 od*100 cm, plug
			8.9	pH, DO senso

\* All connected by non-adjustable straight connectors

# Ordering information

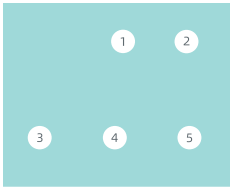
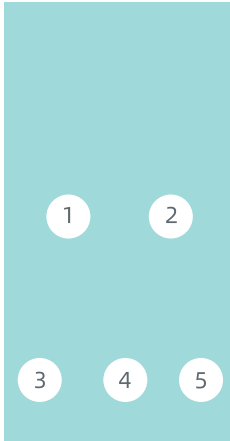
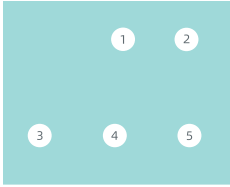
## Mixing function

FL9101 multilayer co-extruded film, ULDPE liquid contact layer, heat resistance up to 65°C

Volume	Version	Product code	Configuration
1 L	Mixing bag	BIOBGWBMR 001LC101	<div><div><div>1</div><div>2</div><div>3</div><div>4</div></div><div><div>1. C-Flex 1/4 id*7/16 od*100 cm, female MPC</div><div>2. C-Flex 1/8 id*1/4 od*100 cm, female Luer</div><div>3. C-Flex 1/4 id*7/16 od*100 cm, male MPC</div><div>4. Silicone 3/16 id*3/8 od*5 cm, needleless sampling</div></div></div>
2 L	Mixing bag	BIOBGWBMR 002LC101	<div><div><div>1</div><div>2</div><div>3</div><div>4</div></div><div><div>1. C-Flex 1/4 id*7/16 od*100 cm, female MPC</div><div>2. C-Flex 1/8 id*1/4 od*100 cm, female Luer</div><div>3. C-Flex 1/4 id*7/16 od*100 cm, male MPC</div><div>4. Silicone 3/16 id*3/8 od*5 cm, needleless sampling</div></div></div>
10 L	Mixing bag	BIOBGWBMR 010LC101	<div><div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div><div>1.2 C-Flex 1/4 id*7/16 od*100 cm, female MPC</div><div>3. C-Flex 1/4 id*7/16 od*100 cm, male MPC</div><div>4. C-Flex 1/8 id*1/4 od*100 cm, female Luer</div><div>5. Silicone 3/16 id*3/8 od*5 cm, needleless sampling</div></div></div>

\* All connected by non-adjustable straight connectors

Volume	Version	Product code	Configuration
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<div>20 L</div> 	Mixing bag	BIOBGWBMR 020LC101	<div>1.2 C-Flex 1/4 id*7/16 od*100 cm, female MPC</div> <div>3. C-Flex 1/4 id*7/16 od*100 cm, male MPC</div> <div>4. C-Flex 1/8 id*1/4 od*100 cm, female Luer</div> <div>5. Silicone 3/16 id*3/8 od*5 cm, needleless sampling</div>
<div>22 L</div> 	Mixing bag	BIOBGWBMR 022LC101	<div>1.2 C-Flex 1/4 id*7/16 od*100 cm, female MPC</div> <div>3. Silicone 3/16 id*3/8 od*5 cm, needleless sampling</div> <div>4. C-Flex 1/8 id*1/4 od*100 cm, female Luer</div> <div>5. C-Flex 1/4 id*7/16 od*100 cm, male MPC</div>
<div>50 L</div> 	Mixing bag	<div>BIOBGWBMR 050LC101</div> <div>BIOBGWBMR 050LS101</div>	<div>1.2 C-Flex 1/4 id*7/16 od*100 cm, female MPC</div> <div>3. C-Flex 1/4 id*7/16 od*100 cm, male MPC</div> <div>4. C-Flex 1/8 id*1/4 od*100 cm, female Luer</div> <div>5. Silicone 3/16 id*3/8 od*5 cm, needleless sampling</div>

\* All connected by non-adjustable straight connectors

# Features of BIOGBRCF Single-Use Bottom-Driven Mixing Bioreactor Bags

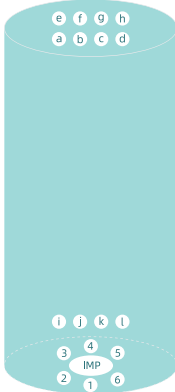
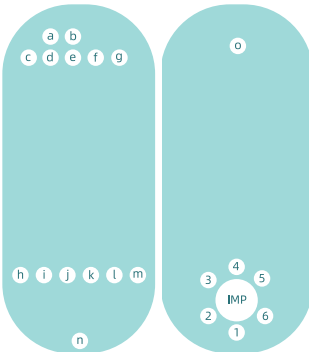
BIOGBRCF Single-Use Bottom-Driven Mixing Bioreactor Bags are designed to match single-use bioreactors used in biopharmaceuticals. The product can be used for scientific research, process development and commercial production of CHO, Vero, and MDCK cells.

- With RENOLIT 9101 multi-layer co-extrusion films, the fluid contact layer is ultra-low density polyethylene (ULDPE), which has good biocompatibility and chemical compatibility and contributes to a low level of extractable
- The ventilation tray contains 6 ventilation dial components, and the ventilation aperture is available in 35  $\mu\text{m}$ , 300  $\mu\text{m}$ , and 1 mm, with good aperture uniformity. Free combinations of micro, medium, and macro spargers are supported to meet different process requirements
- The impeller of 2000 L bioreactor bags are made of engineering-grade plastic Peek for high hardness. The N40E design has a lower shear force and a shorter mixing time
- Standard imported filters to ensure the integrity of bags
- Customized tubings
- Comprehensive validations with completed validation reports

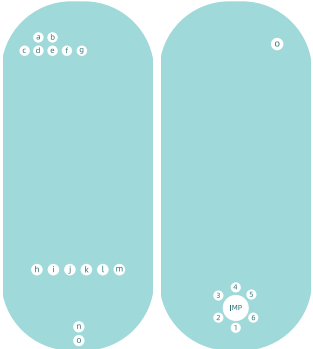


**BIOGBR Single-Use Bioreactor (2000 L) and Controller**

# Standard Configuration of BIOGBRCF Single-Use Bottom-Driven Mixing Bioreac-tor Bags

Volume	Version	Product code	Configuration
50 L 	Medium + Macro sparge	BIOGBRCF0050P101	<ul style="list-style-type: none"> <li>Min. working volume: 15 L</li> <li>Max. working volume: 50 L</li> <li>Impeller: M40e, 3-blade, diameter: 216 mm, angle: 40°, bottom-driven centric mixing</li> </ul>
	Micro + Macro sparge	BIOGBRCF0050P201 BIOGBRCF0050P203	<ul style="list-style-type: none"> <li>e, c (inlet): 205 cm 3/8" × 5/8" C-Flex™ 374, plug</li> <li>a, g (inlet): 60 cm 3/8" × 5/8" C-Flex™ 374, plug</li> <li>h, d (small feed port): 205 cm 1/8" × 1/4" C-Flex™ 374, plug</li> <li>f (vent filter): CS2VTV0.2-002 (Meissner), T-connector tube 1: 60 cm 1/2" × 3/4" C-Flex™ 374, plug; tube 2: 28 cm 1/2" × 3/4" C-Flex™ 374</li> </ul>
	Macro sparge	BIOGBRCF0050P301 BIOGBRCF0050P303	<ul style="list-style-type: none"> <li>b (headspace gas): pressure sensor, CS2VTV0.2-002 (Meissner), 45 cm 1/2" × 3/4" C-Flex™ 374 + 16 cm 1/4" × 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing</li> <li>i (sampling port): 50 cm 1/8" × 1/4" C-Flex™ 374 (× 2), needleless sampling (× 2)</li> <li>j, k (sensor): female Kleenpak™ connector, 1/2" HB</li> <li>l (sensor): thermowell, ID 3.5 mm</li> </ul>
	Medium sparge	BIOGBRCF0050P401	<ul style="list-style-type: none"> <li>1, 3, 5 (harvest tubing): 128 cm 3/8" × 5/8" C-Flex™ 374, hose plug, OD 1/8"–1" pinch valve</li> <li>2, 4, 6 (bottom gas): CS2VTV0.2-002 (Meissner), 153 cm 1/4" × 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing (only 1 filter is available for macro sparge and medium sparge)</li> </ul>
200 L 	Medium + Macro sparge	BIOGBRCF0200P101	<ul style="list-style-type: none"> <li>Min. working volume: 40 L</li> <li>Max. working volume: 200 L</li> <li>Impeller: M40e, 3-blade, diameter 216 mm, angle 40°, bottom-driven eccentric mixing</li> </ul>
	Micro + Macro sparge	BIOGBRCF0200P201 BIOGBRCF0200P203	<ul style="list-style-type: none"> <li>a, b (small feed port): 305 cm 1/8" × 1/4" C-Flex™ 374, plug</li> <li>c, g (inlet): 305 cm 3/8" × 5/8" C-Flex™ 374, plug</li> <li>d, f (inlet): 60 cm 3/8" × 5/8" C-Flex™ 374, plug</li> <li>e (headspace gas): pressure sensor, CF2VTV0.2-33B1 (Meissner), 75 cm 1/2" × 3/4" C-Flex™ 374 + 16 cm 1/4" × 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing</li> </ul>
	Macro sparge	BIOGBRCF0200P301 BIOGBRCF0200P303	<ul style="list-style-type: none"> <li>o (vent filter): CL2VTV0.2-002 (Meissner), T-connector tube 1: 25 cm 3/4" × 1" C-Flex™ 374, plug; tube 2: 60 cm 1/2" × 3/4" C-Flex™ 374</li> <li>h (sampling port): 50 cm 1/8" × 1/4" C-Flex™ 374 (× 2), needleless sampling (× 2)</li> <li>i, j, k, l (sensor): female Kleenpak™ connector, 1/2" HB</li> <li>m (sensor): thermowell, ID 3.5 mm</li> </ul>
	Medium sparge	BIOGBRCF0200P401	<ul style="list-style-type: none"> <li>n (harvest tubing): 90 cm 1/2" × 3/4" C-Flex™ 374, plug, OD 1/8"–1" pinch valve</li> <li>1, 2, 3, 4, 5, 6 (bottom gas): CF2VTV0.2-33B1 (Meissner), 233 cm 1/4" × 7/16" C-Flex™ 374, tc 25 + 6# quick plug or gas tubing</li> </ul>

Volume	Version	Product code	Configuration
500 L	Medium + Macro sparge	BIOGBRCF0500P101	<ul style="list-style-type: none"> <li>Min. working volume: 100 L</li> <li>Max. working volume: 500 L</li> <li>Impeller: M40e, 3-blade, diameter 266 mm, angle 40°, bottom-driven eccentric mixing</li> </ul>
	Micro + Macro sparge	BIOGBRCF0500P201 BIOGBRCF0500P203	<ul style="list-style-type: none"> <li>a, b (small feed port): 320 cm 1/8" × 1/4" C-Flex™ 374, plug</li> <li>c, g (inlet): 320 cm 3/8" × 5/8" C-Flex™ 374, plug</li> <li>d, f (inlet): 60 cm 3/8" × 5/8" C-Flex™ 374, plug</li> <li>e (headspace gas): pressure sensor, CF2VTV0.2-33B1 (Meissner), 85 cm 1/2" × 3/4" C-Flex™ 374 + 16 cm 1/4" × 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing</li> <li>o (vent filter): CL2VTV0.2-002 (Meissner), T-connector tube 1: 30 cm 3/4" × 1" C-Flex™ 374, plug; tube 2: 60 cm 1/2" × 3/4" C-Flex™ 374</li> </ul>
	Macro sparge	BIOGBRCF0500P301 BIOGBRCF0500P303	<ul style="list-style-type: none"> <li>h (sampling port): 50 cm 1/8" × 1/4" C-Flex™ 374 (× 2), needleless sampling (× 2)</li> <li>i, j, k, l (sensor): female Kleenpak™ connector, 1/2" HB</li> <li>m (sensor): thermowell, ID 3.5 mm</li> <li>n (harvest tubing): 90 cm 1/2" × 3/4" C-Flex™ 374, plug, OD 1/8"-1" pinch valve</li> </ul>
	Medium sparge	BIOGBRCF0500P401	<ul style="list-style-type: none"> <li>1, 2, 3, 4, 5, 6 (bottom gas): CF2VTV0.2-33B1 (Meissner), 263 cm 1/4" × 7/16" C-Flex™ 374, tc 25 + 6# quick plug or gas tubing</li> </ul>
1000 L	Medium + Macro sparge	BIOGBRCF1000P101	<ul style="list-style-type: none"> <li>Min. working volume: 200 L</li> <li>Max. working volume: 1000 L</li> <li>Impeller: M40e, 3-blade, diameter 317 mm, angle 40°, bottom-driven eccentric mixing</li> </ul>
	Micro + Macro sparge	BIOGBRCF1000P201 BIOGBRCF1000P203	<ul style="list-style-type: none"> <li>a, b (small feed port): 340 cm 1/8" × 1/4" C-Flex™ 374, plug</li> <li>c, d, f, g (inlet): 340 cm 1/2" × 3/4" C-Flex™ 374, plug</li> <li>e (headspace gas): pressure sensor, CF2VTV0.2-33B1 (Meissner), 75 cm 1/2" × 3/4" C-Flex™ 374 + 16 cm 1/4" × 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing</li> <li>o (vent filter): CU2VTV0.2-1N002 (Meissner), T-connector, tube 1: 30 cm 3/4" × 1" C-Flex™ 374, plug; tube 2: 60 cm 1/2" × 3/4" C-Flex™ 374</li> </ul>
	Macro sparge	BIOGBRCF1000P301 BIOGBRCF1000P303	<ul style="list-style-type: none"> <li>h (sampling port): 50 cm 1/8" × 1/4" C-Flex™ 374 (× 2), needleless sampling (× 2)</li> <li>i, j, k, l (sensor): female Kleenpak™ connector, 1/2" HB</li> <li>m (sensor): thermowell, ID 3.5 mm</li> <li>n (harvest tubing): 90 cm 1" × 1-3/8" C-Flex™ 374, plug, PureFit TCL stop clamp, OD 1-3/8", WALL3/16"</li> </ul>
	Medium sparge	BIOGBRCF1000P401	<ul style="list-style-type: none"> <li>1, 2, 3, 4, 5, 6 (bottom gas): CS2VTV0.2-002 (Meissner), 288 cm 1/4" × 7/16" C-Flex™ 374, tc 25 + 6# quick plug or gas tubing</li> </ul>

Volume	Version	Product code	Configuration
<p>2000 L</p> 	Medium + Macro sparge	BIOGBRCF2000P101	<ul style="list-style-type: none"> <li>Min. working volume: 400 L</li> <li>Max. working volume: 2000 L</li> <li>Impeller: M40e, 4-blade, diameter 419 mm, angle 40° , bottom-driven eccentric mixing</li> </ul>
	Micro + Macro sparge	BIOGBRCF2000P201 BIOGBRCF2000P203	<ul style="list-style-type: none"> <li>a, b (small feed port): 380 cm 1/8" x 1/4" C-Flex™ 374, plug</li> <li>c, d, f, g (inlet): 380 cm 1/2" x 3/4" C-Flex™ 374, plug</li> <li>e (headspace gas): pressure sensor, CF2VTV0.2-33B1 (Meissner), 150 cm 1/2" x 3/4" C-Flex™ 374 + 20 cm 1/4" x 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing</li> </ul>
	Macro sparge	BIOGBRCF2000P301 BIOGBRCF2000P303	<ul style="list-style-type: none"> <li>o (vent filter): CU2VTV0.2-1N002 (Meissner), Y-connector, tube 1: 35 cm 3/4" x 1" C-Flex™ 374, plug; tube 2: 60 cm 3/4" x 1" C-Flex™ 374</li> <li>h (sampling port): 50 cm 1/8" x 1/4" C-Flex™ 374 (x 2), needleless sampling (x 2)</li> </ul>
	Medium sparge	BIOGBRCF2000P401	<ul style="list-style-type: none"> <li>i, j, k, l (sensor): female Kleenpak™ connector, 1/2" HB</li> <li>m (sensor): thermowell, ID 3.5 mm</li> <li>n (harvest tubing): 90 cm 1" x 1-3/8" C-Flex™ 374, plug, PureFit TCL stop clamp, OD 1-3/8", WALL3/16"</li> </ul>
			<ul style="list-style-type: none"> <li>1, 2, 3, 4, 5, 6 (bottom gas): CS2VTV0.2-002 (Meissner), 318 cm 1/2" x 3/4" C-Flex™ 374, tc 25 + 6# quick plug or gas tubing</li> </ul>

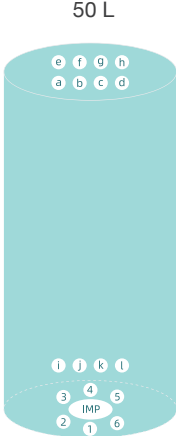


# Single-Use Top-Driven Bioreactor Bag

The core of the BIOGBRCF 50L microbial fermentation system is the single-use microbial bioreactor bag designed to meet the stringent requirements of microbial fermentation. It is used for cultivating various organisms, including E-coli, pseudomonas, and yeast. The single-use microbial reactor bag is based on the proven design and materials of the BIOGBRCF single-use bioreactor bags for mammalian cell culture.

- RENOLIT 9101 multilayer co-extruded film, ULDPE liquid contact layer, offering excellent biocompatibility and chemical compatibility while ensuring low levels of extractable content
- The dual impeller design enables vigorous mixing of the culture, and the bottom magnetic coupling eliminates external shafts, minimizing the risk of leakage
- All single-use microbial bioreactor bags are equipped with pressure sensors to maintain bag integrity during demanding fermentation processes
- The vent filter is equipped with a condensation bag at the front end to integrate

## Standard Configuration of BIOGBRCF Single-Use Bottom-Driven Microbial Bioreactor Bag

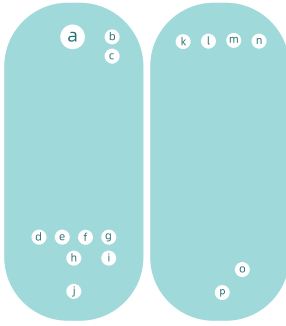
Volume	Version	Product code	Configuration
<div><div>Bio Bag</div><div><div>50 L</div></div></div>	Medium sparge	BIOGBRCF 0050P404	<ul style="list-style-type: none"><li>• Min. working volume: 15 L</li><li>• Max. working volume: 50 L</li><li>• Impeller: double-layer, 6 Rushton blades, pitch blade at the top, axial flow impeller, diameter: 195 mm, bottom-driven centric mixing</li><li>• a, b, e (feeding port): 05 cm 1/8" x 1/4" C-Flex, hose plug</li><li>• c (pressure monitoring): pressure sensor, 45 cm 1/2" x 3/4" C-Flex, hose plug</li><li>• d (vent filter + condensation bag):: 37 cm 1" x 1-3/8" C-Flex, condensation bag, 20 cm 1" x 1-3/8" C-Flex, L10SSAPBBG1P, 35 cm 1" x 1-3/8" C-Flex, L05SSAPBBG1P</li><li>• f (feeding port): 205 cm 1/8" x 1/4" C-Flex (x2), hose plug (x2)</li><li>• g (spare vent filter inlet) : 30 cm 1" x 1-3/8" C-Flex, AseptiQuik® L sterile connector;</li><li>• h (inlet): 205 cm 3/8" x 5/8" C-Flex, hose plug</li><li>• i (sampling port): 50 cm 1/8" x 1/4" C-Flex (x2), sterile sampling valve (x2)</li><li>• j, k (sensor): Kleenpak™ sterile connector female adapter</li><li>• l (sensor): thermowell, ID3.5 mm</li><li>• 1, 3, 5 (harvest tubing): 128 cm 3/8" x 5/8" C-Flex, hose plug, OD1/8"-OD1" pinch valve</li><li>• 2, 4, 6 (bottom gas): CL2VTV0.2-002 (Meissner), 168 cm 1/4" x 7/16" C-Flex, TC 25 + 6 # quick plug for gas tubing (Only one filter for pure medium sparge and pure macro sparge)</li></ul>
	Macro sparge	BIOGBRCF 0050P304	
	Medium + Macro sparge	BIOGBRCF 0050P104	

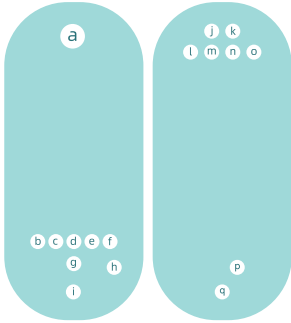
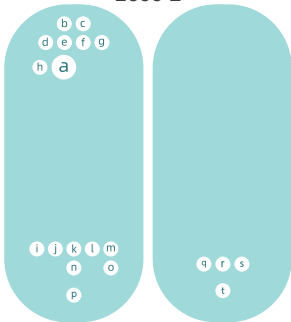
# Features of BIOGBRTF Single-Use Top-Driven Bioreactor Bag

BIOGBRTF Single-Use Top-Driven Bioreactor Bag is designed to match single-use top mechanical coupling bioreactors used in biopharmaceuticals. The product can be used for scientific research, process development and commercial production of CHO, Vero, and MDCK cells, etc.

- RENOLIT 9101 multilayer co-extruded film, ULDPE fluid contact layer, offering excellent biocompatibility and chemical compatibility while ensuring low levels of extractable content
- The porous-frit microsparge column is designed from ultra-high molecular weight polyethylene (UHMW-PE), with pore sizes ranging from 20-40 µm. The generated bubbles possess a high surface area ratio and enhanced oxygen transfer. UHMW-PE exhibits outstanding impact resistance, wear resistance, chemical corrosion resistance, physiological inertness, adaptability, and hydrophobicity
- The macro-perforated microporous membrane is a dispersed aeration disc based on film. Laser-drilled to maintain uniform pore size, various specifications such as 0.178mm, 0.233mm, 0.368mm, 0.445mm, 0.582mm are available, tailored with specific apertures and quantities for each bag specification
- Equipped with imported filters to ensure bag integrity
- All pipelines can be flexibly customized
- Fully validated, complete validation reports can be provided

# Standard Configuration of BIOGBRTF Single-Use Bottom-Driven Bioreactor Bag

Volume	Version	Product code	Configuration
<div><div>50 L</div></div>	Micro + Macro sparge 5:1	BIOGBRTF 0050C201	<ul style="list-style-type: none"><li>• a(top-driven mixing parts): 3-blade impeller, diameter: 111.1 mm, angle: 45°</li><li>• b (headspace gas) : pressure sensor, CF2VTV0.2-33B1 (Meissner), 20 cm1/2" x 3/4" C-Flex + 16 cm 1/4" x 7/16"C-Flex, 6 # quick plug for gas tubing</li><li>• c (inlet / feeding port) : 150 cm 1/4" x 7/16" C-Flex, 30 cm 1/8" x 1/4" C-Flex plug</li><li>• k (inlet / feeding port) : 150 cm 3/8" x 5/8" C-Flex, Y connector, tubing 1: 40 cm 3/8" x 5/8" C-Flex, plug; tubing 2: 10 cm 3/8" x 5/8" C-Flex, 30 cm 1/4" x 7/16" C-Flex, plug</li><li>• l (inlet) : 180 cm 3/8" x 5/8" C-Flex, plug</li><li>• n (feeding port) : 15 cm 1/4" x 7/16" C-Flex, 150 cm 1/8" x 1/4" C-Flex, plug</li><li>• m (vent filter) : CS2VTV0.2-002 (Meissner), Y connector, tubing 1: 25 cm 1/2" x 3/4" C-Flex; tubing 2: 15 cm 1/2" x 3/4" C-Flex, AseptiQuik® G sterile connector, 1/2"HB</li><li>• d,e,f,g (sensor): AseptiQuik® G sterile connector, 1/2"HB</li><li>• h (sampling port) : 30 cm 1/8" x 1/4" C-Flex, needless sampling 50 cm 1/8" x 1/4" C-Flex, plug</li><li>• i (sensor) : thermowell, ID3.5 mm</li><li>• j (harvest port) : 100 cm 1/2" x 3/4" C-Flex, 30 cm 3/8" x 5/8" C-Flex, plug</li><li>• o,p(bottom gas): CF2VTV0.2-33B1 (Meissner), 15 cm 1/4" x 7/16"C-Flex, one-way valve, 150 cm 1/4" x 7/16" C-Flex, 6 # quick plug for tubing</li></ul>
	Micro + Marco sparge 2:1	BIOGBRTF 0050C202	

Volume	Version	Product code	Configuration
1000 L			<ul style="list-style-type: none"> <li>a (top-driven mixing parts) : 3-blade impeller, diameter: 321 mm, angle :45°</li> <li>k (headspace gas) : pressure sensor , CS2VTV0.2-002 (Meissner), 50 cm 1/2" x 3/4" C-Flex + 20 cm 1/4" x 7/16"C-Flex, 6# quick plug for gas tubing</li> <li>l (feeding port) : 15 cm 1/4" x 7/16" C-Flex, 250 cm 1/8" x 1/4" C-Flex, plug</li> <li>m (intlet / feeding port) : 250 cm 1/4" x 7/16" C-Flex, 30 cm 1/8" x 1/4" C-Flex, plug</li> <li>n,o (intlet / feeding port) : 250 cm 3/8" x 5/8" C-Flex, connector, tubing 1: 30 cm 3/8" x 5/8" C-Flex, plug; tubing 2: 20 cm 3/8" x 5/8" C-Flex, 35 cm 1/8" x 1/4" C-Flex, plug</li> <li>j (vent filter) : CUVTV0.2-1N002 (Meissner)×2, connector, tubing 1: 25 cm 3/4" x 1" C-Flex; tubing 2: 25 cm 3/4" x 1" C-Flex</li> <li>b,c,d,e,f (sensor) : AseptiQuik® G sterile connector, 1/2"HB</li> <li>g (sampling port) : 30 cm 1/8" x 1/4" C-Flex, needless sampling; 80 cm 1/8" x 1/4" C-Flex, plug</li> <li>h (sensor) : thermowell, ID3.5 mm</li> <li>i (harvest port) : 160 cm 1/2" x 3/4" C-Flex, 30 cm 3/8" x 5/8" C-Flex, connector tubing 1: 30 cm 3/8" x 5/8" C-Flex, plug; tubing 2: 20 cm 3/8" x 5/8" C-Flex, 35 cm 1/8" x 1/4" C-Flex, plug</li> <li>p, q (bottom gas) : CS2VTV0.2-002 (Meissner), 16 cm 1/4" x 7/16"C-Flex, one-way valve, 185 cm 1/4" x 7/16" C-Flex, 6# quick plug for gas tubing</li> </ul>
	Micro + Macro sparge 5:1	BIOBGBRTF 1000C201	
2000 L			<ul style="list-style-type: none"> <li>a (top-driven mixing parts) : 3-blade impeller, diameter: 397 mm, angle: 45°</li> <li>c (headspace gas) : pressure sensor , CS2VTV0.2-002 (Meissner), 50 cm 1/2" x 3/4" C-Flex + 30 cm 1/4" x 7/16"C-Flex, 6# quick plug for gas tubing</li> <li>d,g (ifeeding port) 50 cm 1/4" x 7/16" C-Flex,220 cm 1/8" x 1/4" C-Flex, plug</li> <li>e (intlet / feeding port) 220 cm 1/2" x 3/4" C-Flex,50 cm 3/8" x 5/8" C-Flex, plug</li> <li>f (intlet / feeding port) 220 cm 1/4" x 7/16" C-Flex,50 cm 1/8" x 1/4" C-Flex, plug</li> <li>h (intlet): 15 cm 1" x 1 - 3/8" C-Flex, connector (internal extended tube), tubing 1: 15 cm 3/4" x 1" C-Flex, 250 cm 1/2" x 3/4" C-Flex, plug; tubing 2: 15 cm 3/4" x 1" C-Flex, 250 cm 1/2" x 3/4" C-Flex, plug</li> <li>b (vent filter) : CUVTV0.2-1N002 (Meissner)×2, Y connector, tubing 1: 30 cm 3/4" x 1" C-Flex; tubing 2: 30 cm 3/4" x 1" C-Flex</li> <li>i,j,k,l,m (sensor) : AseptiQuik® G sterile connector, 1/2"HB</li> <li>n (sampling port) : 30 cm 1/8" x 1/4" C-Flex, needless sampling; 80 cm 1/8" x 1/4" C-Flex, plug</li> <li>o (sensor) : thermowell, ID3.5 mm</li> <li>p (harvest port) : 200 cm 3/4" x 1" C-Flex, TC 50</li> <li>q, r, s, t (bottom gas) : CS2VTV0.2-002 (Meissner), 8 cm 1/4" x 7/16" C-Flex, one-way valve, 200 cm 1/4" x 7/16" C-Flex, 6# quick plug for gas tubing</li> </ul>
	Micro + Macro sparge 5:1	BIOBGBRTF 2000C201	

BIOBGMB Single-Use Mixing Bags are made of multi-layer co-extrusion films. The sterile storage bags are guaranteed very low gas permeability, excellent chemical compatibility and biocompatibility, and good physical strength. This ensures their safety in the preparation and storage of feed liquids in various biopharmaceutical processes. The impellers are designed with high-strength magnet and secondary coating, and complete tightness is guaranteed due to the whole coating of the magnet. The combination of the bags with different impellers contributes to efficient mixing. The flexibly designed mixing bags can be integrated with various types of sensors for online monitoring of pH, conductivity, and temperature. Also, it can be flexibly equipped with 2", 3", 4", 6", and 8" feeding ports to meet solid feeding needs.

## Ordering information

### Single-use cubic mixing bag

Product code	Matching type	Line 1	Line 2	Line 3	Feeding port	Film
BIOBGMBSC0050S003	Cubic stainless steel mixing system 50 L	150 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	150 cm ID3/8**OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Imported
BIOBGMBSC0050S004	Cubic stainless steel mixing system 50 L	150 cm ID3/8**OD5/8" thermoplastic tubing + plug	150 cm ID3/8**OD5/8" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Imported
BIOBGMBSC0050S005	Cubic stainless steel mixing system 50 L	150 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	150 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Domestic
BIOBGMBSC0050S006	Cubic stainless steel mixing system 50 L	150 cm ID3/8**OD5/8" thermoplastic tubing + plug	150 cm ID3/8**OD5/8" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Domestic
BIOBGMBSC0100S003	Cubic stainless steel mixing system 100 L	150 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	150 cm ID3/8**OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Imported
BIOBGMBSC0100S004	Cubic stainless steel mixing system 100 L	150 cm ID3/8**OD5/8" thermoplastic tubing + plug	150 cm ID3/8**OD5/8" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Imported
BIOBGMBSC0100S005	Cubic stainless steel mixing system 100 L	150 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	150 cm ID3/8**OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Domestic
BIOBGMBSC0100S006	Cubic stainless steel mixing system 100 L	150 cm ID3/8**OD5/8" thermoplastic tubing + plug	150 cm ID3/8**OD5/8" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Domestic
BIOBGMBSC0200S003	Cubic stainless steel mixing system 200 L	150 cm ID1/2**OD3/4" platinum cured silicone tubing + female MPX	150 cm ID1/2**OD3/4" platinum cured silicone tubing + male MPX	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Imported
BIOBGMBSC0200S004	Cubic stainless steel mixing system 200 L	150 cm ID1/2**OD3/4" thermoplastic tubing + plug	150 cm ID1/2**OD3/4" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Imported
BIOBGMBSC0200S005	Cubic stainless steel mixing system 200 L	150 cm ID1/2**OD3/4" platinum cured silicone tubing + female MPX	150 cm ID1/2**OD3/4" platinum cured silicone tubing + male MPX	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Domestic
BIOBGMBSC0200S006	Cubic stainless steel mixing system 200 L	150 cm ID1/2**OD3/4" thermoplastic tubing + plug	150 cm ID1/2**OD3/4" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Domestic
BIOBGMBSC0400S003	Cubic stainless steel mixing system 400 L	150 cm ID1/2**OD3/4" platinum cured silicone tubing + female MPX	150 cm ID1/2**OD3/4" platinum cured silicone tubing + male MPX	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Imported
BIOBGMBSC0400S004	Cubic stainless steel mixing system 400 L	150 cm ID1/2**OD3/4" thermoplastic tubing + plug	150 cm ID1/2**OD3/4" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Imported
BIOBGMBSC0400S005	Cubic stainless steel mixing system 400 L	150 cm ID1/2**OD3/4" platinum cured silicone tubing + female MPX	150 cm ID1/2**OD3/4" platinum cured silicone tubing + male MPX	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Domestic
BIOBGMBSC0400S006	Cubic stainless steel mixing system 400 L	150 cm ID1/2**OD3/4" thermoplastic tubing + plug	150 cm ID1/2**OD3/4" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Domestic

[illegible]

### Mixing bags of other models

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Product code	Matching type	Line 1	Line 2	Line 3	Feeding port	Film
BIOBGMM2R1000S003	M series circular mixing system-Generation II 1000 L	150 cm ID3/4**OD1" platinum cured silicone tubing + TC50	150 cm ID3/4**OD1" platinum cured silicone tubing + TC50	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Imported
BIOBGMM2R1000S007	M series circular mixing system-Generation II 1000 L	150 cm ID13/4**OD1" thermoplastic tubing + plug	150 cm ID13/4**OD1" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Imported
BIOBGMM2R1000S005	M series circular mixing system-Generation II 1000 L	150 cm ID3/4**OD1" platinum cured silicone tubing + TC50	150 cm ID3/4**OD1" platinum cured silicone tubing + TC50	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Domestic
BIOBGMM2R1000S008	M series circular mixing system-Generation II 1000 L	150 cm ID13/4**OD1" thermoplastic tubing + plug	150 cm ID13/4**OD1" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Domestic
BIOBGMM2R2000S003	M series circular mixing system-Generation II 2000 L	150 cm ID3/4**OD1" platinum cured silicone tubing + TC50	150 cm ID3/4**OD1" platinum cured silicone tubing + TC50	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Imported
BIOBGMM2R2000S007	M series circular mixing system-Generation II 2000 L	150 cm ID13/4**OD1" thermoplastic tubing + plug	150 cm ID13/4**OD1" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Imported
BIOBGMM2R2000S005	M series circular mixing system-Generation II 2000 L	150 cm ID3/4**OD1" platinum cured silicone tubing + TC50	150 cm ID3/4**OD1" platinum cured silicone tubing + TC50	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Domestic
BIOBGMM2R2000S008	M series circular mixing system-Generation II 2000 L	150 cm ID13/4**OD1" thermoplastic tubing + plug	150 cm ID13/4**OD1" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Domestic
BIOBGMM2R3000S003	M series circular mixing system-Generation II 3000 L	150 cm ID3/4**OD1" platinum cured silicone tubing + TC50	150 cm ID3/4**OD1" platinum cured silicone tubing + TC50	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Imported
BIOBGMM2R3000S007	M series circular mixing system-Generation II 3000 L	150 cm ID13/4**OD1" thermoplastic tubing + plug	150 cm ID13/4**OD1" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Imported
BIOBGMM2R3000S005	M series circular mixing system-Generation II 3000 L	150 cm ID3/4**OD1" platinum cured silicone tubing + TC50	150 cm ID3/4**OD1" platinum cured silicone tubing + TC50	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	4" Feeding port	Domestic
BIOBGMM2R3000S008	M series circular mixing system-Generation II 3000 L	150 cm ID13/4**OD1" thermoplastic tubing + plug	150 cm ID13/4**OD1" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	4" Feeding port	Domestic



# Electrode Sleeve

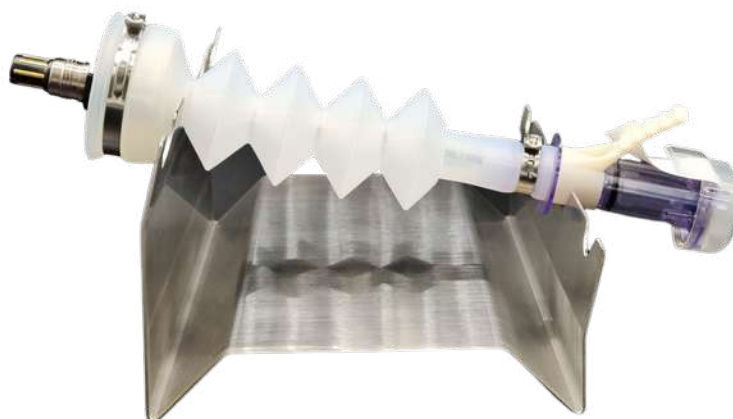
As one of the critical steps in different biopharmaceutical fields for antibody drugs, vaccines, and drugs for cell therapy and gene therapy, cell culture has direct effects on the yield and quality of drugs. The monitoring of pH and dissolved oxygen is very important during the cell culture process to ensure performance indicators, including viable cell density, cell viability, and cell unit yield. GVS Electrode Sleeve are specially designed for sterile monitoring of pH and dissolved oxygen.

## Applications

Sterile connection of pH/DO electrode probe with the single-use bioreactor bag during the cell culture process.

## Features

- Threaded fittings adapted to pH/DO electrodes to ensure air tightness
- The telescopic tubes of different specifications are suitable for electrodes and sterile connectors based on their lengths
- Electrode mounting clips and sterile brackets are also available
- Resistant to humid heat sterilization: temperature  $\leq 135^{\circ}\text{C}$ , 30 min
- Sufficient inventory of raw materials and relevant components to support the supply chain stably
- Fully compliant with biosafety requirements



**KPC Electrode Sleeve with electrode bracket**

# Technical Parameters

Component name	Main material
KPC/AQG connector	-
Unit Polycarbonate	Polycarbonate
Telescopic tubing Silicone	Silicone
Threaded fitting PSU	PSU

# Ordering information

Product	Product name	Description
BIOGBRCF000LP001	Electrode sleeve × 4	KPC series + telescopic tubing + threaded fitting + nylon snap ring, 4 pcs per group
BIOGBRCF000LP002	Electrode sleeve × 2	KPC series + telescopic tubing + threaded fitting + nylon snap ring, 2 pcs per group
BIOGBRCF000LC001	Electrode sleeve × 4	AQG series + telescopic tubing + threaded fitting + nylon snap ring, 4 pcs per group
BIOGCBR0001L361	Electrode mounting clip	Auxiliary fixed electrode clamp × 1
BIOGCBR0001L360	Electrode bracket	Sterile electrode bracket × 1



KPC Electrode Sleeve



AQG Electrode Sleeve

# Single-Use Open Bags

Single-Use Open Bags are made of multi-layer co-extrusion films (PP infusion film and FL194A). The sterile storage bags are guaranteed very low gas permeability, excellent chemical compatibility and biocompatibility. This ensures their safety in the preparation and storage of feed liquids in various biopharmaceutical processes.

## Features

- The open design facilitates the rapid feeding of a large volume of materials
- Flexible choice of film options and higher cost performance
- Flexibly customizable sizes, tubing, and connector
- Complete validation documents

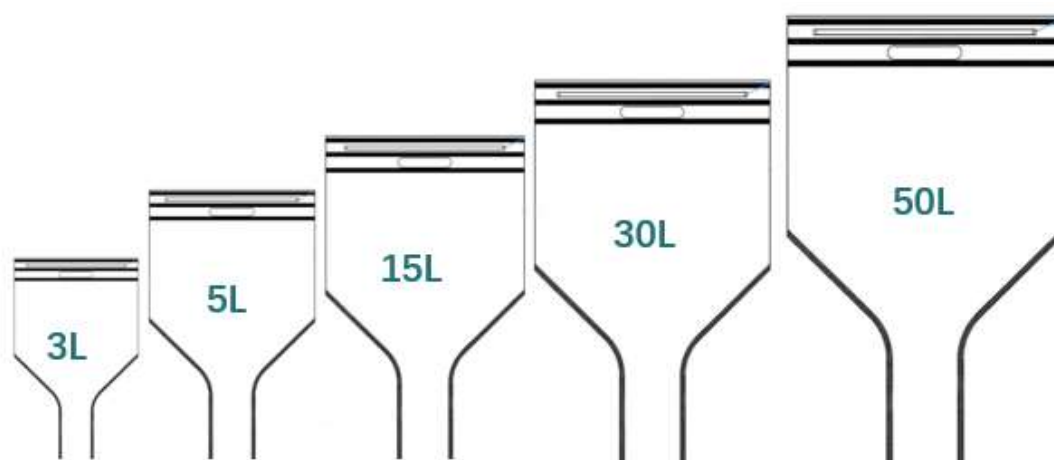
## Ordering information

Product code	Matching type	Line 1	Film
BIOGBBLR0050S005		No outlet tubing	PP infusion film
BIOGBBLR0050S003	plastic bin 50 L	No outlet tubing	FL194A
BIOGBBLR0050S004		50 cm ID3/8"*OD5/8" platinum cured silicone tubing + male MPC	FL194A
BIOGBBLR0100S005		No outlet tubing	PP infusion film
BIOGBBLR0100S003	plastic bin 100 L	No outlet tubing	FL194A
BIOGBBLR0100S004		50 cm ID3/8"*OD5/8" platinum cured silicone tubing + male MPC	FL194A
BIOGBBLR0200S005		No outlet tubing	PP infusion film
BIOGBBLR0200S003	plastic bin 200 L	No outlet tubing	FL194A
BIOGBBLR0200S004		50 cm ID3/8"*OD5/8" platinum cured silicone tubing + male MPC	FL194A
BIOGBBLR0300S005		No outlet tubing	PP infusion film
BIOGBBLR0300S003	plastic bin 300 L	No outlet tubing	FL194A
BIOGBBLR0300S004		50 cm ID1/2"*OD3/4" platinum cured silicone tubing + male MPX	FL194A
BIOGBBLR0500S005		No outlet tubing	PP infusion film
BIOGBBLR0500S003	plastic bin 500 L	No outlet tubing	FL194A
BIOGBBLR0500S004		50 cm ID1/2"*OD3/4" platinum cured silicone tubing + male MPX	FL194A

Product code	Matching type	Line 1	Film
BIOGBTLR0019S005		No outlet tubing	PP infusion film
BIOGBTLR0019S003	N series circular bin 19 L	No outlet tubing	FL194A
BIOGBTLR0019S004		50 cm ID1/4"*OD7/16" platinum cured silicone tubing + male MPC	FL194A
BIOGBTLR0028S005		No outlet tubing	PP infusion film
BIOGBTLR0028S003	N series circular bin 28 L	No outlet tubing	FL194A
BIOGBTLR0028S004		50 cm ID1/4"*OD7/16" platinum cured silicone tubing + male MPC	FL194A
BIOGBTLR0038S005		No outlet tubing	PP infusion film
BIOGBTLR0038S003	N series circular bin 38 L	No outlet tubing	FL194A
BIOGBTLR0038S004		50 cm ID1/4"*OD7/16" platinum cured silicone tubing + male MPC	FL194A
BIOGBTLR0057S005		No outlet tubing	PP infusion film
BIOGBTLR0057S003	N series circular bin 57 L	No outlet tubing	FL194A
BIOGBTLR0057S004		50 cm ID3/8"*OD5/8" platinum cured silicone tubing + male MPC	FL194A
BIOGBTLR0113S005		No outlet tubing	PP infusion film
BIOGBTLR0113S003	N series circular bin 113 L	No outlet tubing	FL194A
BIOGBTLR0113S004		50 cm ID3/8"*OD5/8" platinum cured silicone tubing + male MPC	FL194A
BIOGBTLR0208S005		No outlet tubing	PP infusion film
BIOGBTLR0208S003	N series circular bin 208 L	No outlet tubing	FL194A
BIOGBTLR0208S004		50 cm ID3/8"*OD5/8" platinum cured silicone tubing + male MPC	FL194A
BIOGBTLR0303S005		No outlet tubing	PP infusion film
BIOGBTLR0303S003	N series circular bin 303 L	No outlet tubing	FL194A
BIOGBTLR0303S004		50 cm ID1/2"*OD3/4" platinum cured silicone tubing + male MPX	FL194A
BIOGBTLR0378S005		No outlet tubing	PP infusion film
BIOGBTLR0378S003	N series circular bin 378 L	No outlet tubing	FL194A
BIOGBTLR0378S004		50 cm ID1/2"*OD3/4" platinum cured silicone tubing + male MPX	FL194A
BIOGBTLR0568S005		No outlet tubing	PP infusion film
BIOGBTLR0568S003	N series circular bin 568 L	No outlet tubing	FL194A
BIOGBTLR0568S004		50 cm ID1/2"*OD3/4" platinum cured silicone tubing + male MPX	FL194A
BIOGBTLR0050S005		No outlet tubing	PP infusion film
BIOGBTLR0050S003	T series circular bin 50 L	No outlet tubing	FL194A
BIOGBTLR0050S004		50 cm ID3/8"*OD5/8" platinum cured silicone tubing + male MPC	FL194A
BIOGBTLR0100S005		No outlet tubing	PP infusion film
BIOGBTLR0100S003	T series circular bin 100 L	No outlet tubing	FL194A
BIOGBTLR0100S004		50 cm ID3/8"*OD5/8" platinum cured silicone tubing + male MPC	FL194A
BIOGBTLR0200S005		No outlet tubing	PP infusion film
BIOGBTLR0200S003	T series circular bin 200 L	No outlet tubing	FL194A
BIOGBTLR0200S004		50 cm ID3/8"*OD5/8" platinum cured silicone tubing + male MPC	FL194A

# Single-Use Powder-Feeding Bag

GVS Single-Use Powder Feeding Bags are easy to use with high recovery and do not require cleaning or sterilization. The bags are made of anti-static films; the feeding port and the bag are closely fit, effectively avoiding residues.



Powder-feeding bag

## Features

- Volume range: 3 L, 5 L, 15 L, 30 L, 50 L
- Feeding port sizes: 2", 3", 4", 6", 8"
- Optional washing function: maximize the recovery of residual powder
- Soft bag body and ergonomic rods for easy operation

## Ordering information

Product code	Matching type	Feeding port	Film
BIOGBBP0003S001	3 L	3" Feeding port	Anti-static film
BIOGBBP0003S002	3 L	4" Feeding port	Anti-static film
BIOGBBP0003S003	3 L	2" Feeding port	Anti-static film
BIOGBBP0005S001	5 L	3" Feeding port	Anti-static film
BIOGBBP0005S002	5 L	4" Feeding port	Anti-static film
BIOGBBP0005S003	5 L	2" Feeding port	Anti-static film
BIOGBBP0015S001	15 L	3" Feeding port	Anti-static film
BIOGBBP0015S002	15 L	4" Feeding port	Anti-static film
BIOGBBP0015S003	15 L	2" Feeding port	Anti-static film
BIOGBBP0030S001	30 L	3" Feeding port	Anti-static film
BIOGBBP0030S002	30 L	4" Feeding port	Anti-static film
BIOGBBP0030S004	30 L	6" Feeding port	Anti-static film
BIOGBBP0050S001	50 L	3" Feeding port	Anti-static film
BIOGBBP-0050-S002	50 L	4" Feeding port	Anti-static film
BIOGBBP-0050-S004	50 L	6" Feeding port	Anti-static film
BIOGBBP-0050-S005	50 L	8" Feeding port	Anti-static film

# Single-Use Weighing Bag

GVS weighing bags are made of PE films and the 3D design contributes to convenient weighing.

## Features

- Volume range: 1 L, 5 L, 10 L, 50 L
- Seal transfer can be achieved with a heat sealer, seling clip, or cable tie
- The 3D design facilitates weighing

## Ordering information

Product code	Volume	Film
BIOGBW0001S002	1 L	PE film
BIOGBW0005S002	5 L	PE film
BIOGBW0010S002	10 L	PE film
BIOGBW0050S002	50 L	PE film
BIOGBWX200S003	200 ml	PE films for pharmaceutical packaging
BIOGBW0003S003	3 L	PE films for pharmaceutical packaging
BIOGBW0005S003	5 L	PE films for pharmaceutical packaging
BIOGBW0006S003	6 L	PE films for pharmaceutical packaging

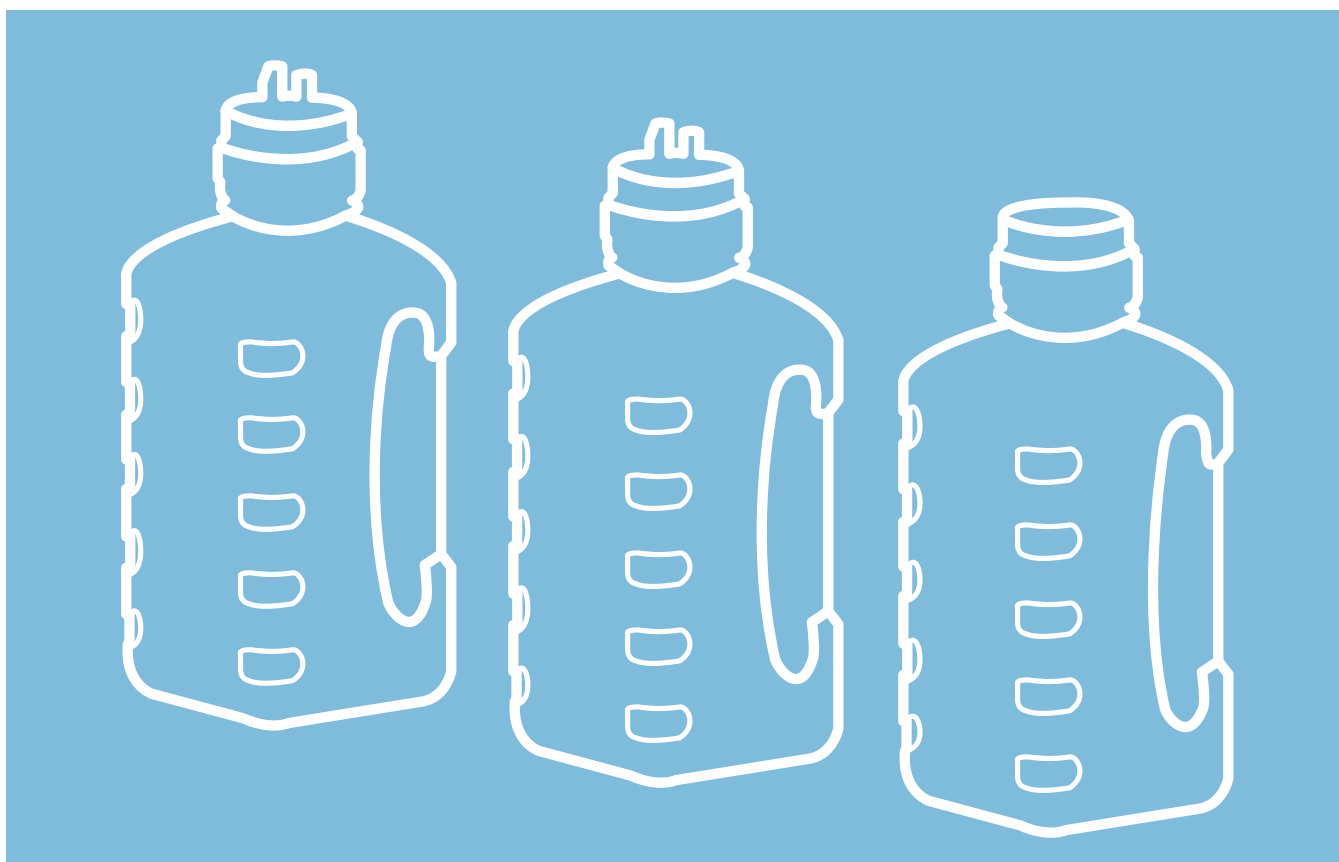
# Liquid Storage Solution

The storage and transport of process fluids are critical in biopharmaceutical processes. GVS Single-Use Storage Systems are specially designed for medium storage and transfer, cell fluid clarification and collection, interim storage of filtered buffers, intermediate product storage, bulk solution storage and cryopreservation, interim storage of semi-finished products, etc. Flexible transfer can be achieved with GVS 2D Storage Bags, 3D Storage Bags, and Storage Bottles, together with different storage and transfer tools. These systems include cubic collapsible plastic boxes, circular plastic bins, 2D plastic trays, stainless steel tanks, and carts.

## Storage Bottle

Single-Use Storage Bottles are designed for the storage, transport, and cryopreservation of liquids used in biopharmaceutical processes. It can be used for sensitive liquids, buffers, culture media, etc. Autoclave and gamma irradiation versions with different caps are available. There is no risk of batch-to-batch or product-to-product cross-contamination. In addition, the bottle is equipped with multiple designs of caps and can be flexibly selected by customers according to their different requirements for liquid transfer.

The caps of Single-Use Storage Bottles are available in 20 mm, 38 mm, 48 mm, and 80 mm, and are suitable for various steps of biotechnology and pharmaceutical liquid transport. The caps can be adapted to GVS liquid storage bottles as well as some foreign brand liquid storage bottles.



## Features

- The bottle is made of PC material for its durability and transparency
- The cap is equipped with a silicone gasket to prevent leakage
- Volume range: 5 mL–10 L
- No additives, irradiated natural discoloration
- Fully validated to ensure safety
- Can be stored at  $-80^{\circ}\text{C}$
- Resistant to moist heat sterilization at  $121^{\circ}\text{C}$  for 30 min for 3 times
- Customization available

## Validation Documents

- USP <661>
- ISO10993-4 Hemolysis
- USP<88>Class VI
- USP<87> No cytotoxicity
- USP<85> No pyrogen
- USP <788> Particulate Matter in Injections
- FDA 21 CFR 177.1580
- FDA 21 CFR 177.1520



## Ordering information

### Bottle with regular cap

Product code - sterile	Product code - non-sterile	Volume	Dimension L*W*H (mm)	Package	Cap
BIOGBTA5ML001	BIOGBTB5ML001	5 mL	36*36*60	200	20 mm regular cap
BIOGBTA20ML001	BIOGBTB20ML001	20 mL	36*36*80	200	
BIOGBTA50ML001	BIOGBTB50ML001	50 mL	45*45*85	120	
BIOGBTA125ML001	BIOGBTB125ML001	125 mL	54*54*120	60	38 mm regular cap
BIOGBTA250ML001	BIOGBTB250ML001	250 mL	68*68*140	40	
BIOGBTA500ML001	BIOGBTB500ML001	500 mL	74*74*190	20	
BIOGBTA1L001	BIOGBTB1L001	1 L	98*98*220	25	48 mm regular cap
BIOGBTA2L001	BIOGBTB2L001	2 L	114*114*286	16	
BIOGBTA5L001	BIOGBTB5L001	5 L	180*180*332	6	80 mm regular cap
BIOGBTA10L001	BIOGBTB10L001	10 L	240*240*361	4	



### Storage bottle with 2-port cap (no tubing)

Product code - sterile	Product code - non-sterile	Volume	Dimension L*W*H (mm)	Package	Cap
BIOGBTA5ML002	BIOGBTB5ML002	5 mL	36*36*60	200	20 mm 2-port cap, no tubing
BIOGBTA20ML002	BIOGBTB20ML002	20 mL	36*36*80	200	
BIOGBTA50ML002	BIOGBTB50ML002	50 mL	45*45*85	120	
BIOGBTA125ML002	BIOGBTB125ML002	125 mL	54*54*120	60	38 mm 2-port cap, no tubing
BIOGBTA250ML002	BIOGBTB250ML002	250 mL	68*68*140	40	
BIOGBTA500ML002	BIOGBTB500ML002	500 mL	74*74*190	20	
BIOGBTA1L002	BIOGBTB1L002	1 L	98*98*220	25	48 mm 2-port cap, no tubing
BIOGBTA2L002	BIOGBTB2L002	2 L	114*114*286	16	
BIOGBTA5L002	BIOGBTB5L002	5 L	180*180*332	6	80 mm 2-port cap, no tubing
BIOGBTA10L002	BIOGBTB10L002	10 L	240*240*361	4	



## Storage bottle with 3-port cap (no tubing)

Product code - sterile	Product code - non-sterile	Volume	Dimension L*W*H (mm)	Package	Cap
BIOGBTA5ML003	BIOGBTB5ML003	5 mL	36*36*60	200	20 mm 3-port cap, no tubing
BIOGBTA20ML003	BIOGBTB20ML003	20 mL	36*36*80	200	
BIOGBTA50ML003	BIOGBTB50ML003	50 mL	45*45*85	120	
BIOGBTA125ML003	BIOGBTB125ML003	125 mL	54*54*120	60	38 mm 3-port cap, no tubing
BIOGBTA250ML003	BIOGBTB250ML003	250 mL	68*68*140	40	
BIOGBTA500ML003	BIOGBTB500ML003	500 mL	74*74*190	20	
BIOGBTA1L003	BIOGBTB1L003	1 L	98*98*220	25	48 mm 3-port cap, no tubing
BIOGBTA2L003	BIOGBTB2L003	2 L	114*114*286	16	
BIOGBTA5L003	BIOGBTB5L003	5 L	180*180*332	6	80 mm 3-port cap, no tubing
BIOGBTA10L003	BIOGBTB10L003	10 L	240*240*361	4	



## Storage bottle with 2-port cap (with welded tubing)

Product code - sterile	Product code - non-sterile	Volume	Dimension L*W*H (mm)	Cap	Line
BIOGBTA5ML008	BIOGBTB5ML008	5 ml	36*36*60	20 mm 2-port cap	Outer tubing 1: thermoplastic tubing, 1/8"*1/4", 30 cm, plug
BIOGBTA20ML008	BIOGBTB20ML008	20 ml	36*36*80		Outer tubing 2: silicone tubing, 1/8"*1/4", 10 cm, hydrophobic filter
BIOGBTA50ML008	BIOGBTB50ML008	50 ml	45*45*85		Inner tubing: silicone tubing, 1/8"*1/4", bottoming
BIOGBTA125ML008	BIOGBTB125ML008	125 ml	54*54*120	38 mm 2-port cap	Outer tubing 1: thermoplastic tubing, 1/4"*7/16", 30 cm, plug
BIOGBTA250ML008	BIOGBTB250ML008	250 ml	68*68*140		Outer tubing 2: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter
BIOGBTA500ML008	BIOGBTB500ML008	500 ml	74*74*190		Inner tubing: silicone tubing, 1/8"*1/4", bottoming
BIOGBTA1L008	BIOGBTB1L008	1 L	98*98*220	48 mm 2-port cap	Outer tubing 1: thermoplastic tubing, 1/4"*7/16", 30 cm, plug
BIOGBTA2L008	BIOGBTB2L008	2 L	114*114*286		Outer tubing 2: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter
BIOGBTA5L008	BIOGBTB5L008	5 L	180*180*332	80 mm 2-port cap	Inner tubing: silicone tubing, 1/4"*7/16", bottoming



## Storage bottle with 2-port cap (with silicone tubing)

Product code - sterile	Product code - non-sterile	Volume	Dimension L*W*H (mm)	Cap	Line
BIOGBTA5ML009	BIOGBTB5ML009	5 ml	36*36*60	20 mm 2-port cap	Outer tubing 1: silicone tubing with metal ring, 1/8"*1/4", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/8"*1/4", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/8"*1/4", bottoming
BIOGBTA20ML009	BIOGBTB20ML009	20 ml	36*36*80		
BIOGBTA50ML009	BIOGBTB50ML009	50 ml	45*45*85		
BIOGBTA125ML009	BIOGBTB125ML009	125 ml	54*54*120	38 mm 2-port cap	Outer tubing 1: silicone tubing with metal ring, 1/4"*7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/8"*1/4", bottoming
BIOGBTA250ML009	BIOGBTB250ML009	250 ml	68*68*140		
BIOGBTA500ML009	BIOGBTB500ML009	500 ml	74*74*190		
BIOGBTA1L009	BIOGBTB1L009	1 L	98*98*220	48 mm 2-port cap	Outer tubing 1: silicone tubing with metal ring, 1/4"*7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/4"*7/16", bottoming
BIOGBTA2L009	BIOGBTB2L009	2 L	114*114*286		
BIOGBTA5L009	BIOGBTB5L009	5 L	180*180*332	80 mm 2-port cap	Outer tubing 1: silicone tubing with metal ring, 3/8"*5/8", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 3/8"*5/8", 15 cm, hydrophobic filter Inner tubing: silicone tubing, 1/4"*7/16", bottoming



## Storage bottle with 3-port cap (with welded tubing)

Product code - sterile	Product code - non-sterile	Volume	Dimension L*W*H (mm)	Cap	Line
BIOGBTA5ML010	BIOGBTB5ML010	5 ml	36*36*60		
BIOGBTA20ML010	BIOGBTB20ML010	20 ml	36*36*80	20 mm 3-port cap	Outer tubings 1 & 2: thermoplastic tubing, 1/8"*1/4", 30 cm, plug Outer tubing 3: silicone tubing, 1/8"*1/4", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/8"*1/4, bottoming
BIOGBTA50ML010	BIOGBTB50ML010	50 ml	45*45*85		
BIOGBTA125ML010	BIOGBTB125ML010	125 ml	54*54*120		
BIOGBTA250ML010	BIOGBTB250ML010	250 ml	68*68*140	38 mm 3-port cap	Outer tubings 1 & 2: thermoplastic tubing, 1/4"*7/16", 30 cm, plug Outer tubing 3: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/8"*1/4, bottoming
BIOGBTA500ML010	BIOGBTB500ML010	500 ml	74*74*190		
BIOGBTA1L010	BIOGBTB1L010	1 L	98*98*220	48 mm 3-port cap	Outer tubings 1 & 2: thermoplastic tubing, 1/4"*7/16", 30 cm, plug Outer tubing 3: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/4"*7/16", bottoming
BIOGBTA2L010	BIOGBTB2L010	2 L	114*114*286		
BIOGBTA5L010	BIOGBTB5L010	5 L	180*180*332	80 mm 3-port cap	Outer tubings 1 & 2: thermoplastic tubing, 3/8"*5/8", 30 cm, plug Outer tubing 3: silicone tubing, 3/8"*5/8", 15 cm, hydrophobic filter Inner tubing: silicone tubing, 1/4"*7/16", bottoming



## Storage bottle with 3-port cap (with silicone tubing)

Product code - sterile	Product code - non-sterile	Volume	Dimension L*W*H (mm)	Cap	Line
BIOGBTA5ML011	BIOGBTB5ML011	5 ml	36*36*60	20 mm 3-port cap	Outer tubing 1: silicone tubing with metal ring, 1/8"*1/4", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/8"*1/4", 10 cm, hydrophobic filter Outer tubing 3: silicone tubing with metal ring, 1/8"*1/4", 30 cm, MPC-Male Inner tubing: silicone tubing, 1/8"*1/4", bottoming
BIOGBTA20ML011	BIOGBTB20ML011	20 ml	36*36*80		
BIOGBTA50ML011	BIOGBTB50ML011	50 ml	45*45*85		
BIOGBTA125ML011	BIOGBTB125ML011	125 ml	54*54*120	38 mm 3-port cap	Outer tubing 1: silicone tubing with metal ring, 1/4"*7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter Outer tubing 3: silicone tubing with metal ring, 1/4"*7/16", 30 cm, MPC-Male Inner tubing: silicone tubing, 1/8"*1/4", bottoming
BIOGBTA250ML011	BIOGBTB250ML011	250 ml	68*68*140		
BIOGBTA500ML011	BIOGBTB500ML011	500 ml	74*74*190		
BIOGBTA1L011	BIOGBTB1L011	1 L	98*98*220	48 mm 3-port cap	Outer tubing 1: silicone tubing with metal ring, 1/4"*7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter Outer tubing 3: silicone tubing with metal ring, 1/4"*7/16", 30 cm, MPC-Male Inner tubing: silicone tubing, 1/4"*7/16", bottoming
BIOGBTA2L011	BIOGBTB2L011	2 L	114*114*286		
BIOGBTA5L011	BIOGBTB5L011	5 L	180*180*332	80 mm 3-port cap	Outer tubing 1: silicone tubing with metal ring, 3/8*5/8", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 3/8*5/8", 15 cm, hydrophobic filter Outer tubing 3: silicone tubing with metal ring, 3/8*5/8", 30 cm, MPC-Male Inner tubing: silicone tubing, 1/4"*7/16", bottoming



## Cap - no tubing



Product code - sterile	Product description	Line
BIOBGCAP200001	20 mm, regular	No port, no tubing
BIOBGCAP380001	38 mm, regular	
BIOBGCAP480001	48 mm, regular	
BIOBGCAP800001	80 mm, regular	
BIOBGCAP202001	20 mm, 2-port	2 ports, no tubing; 1/8" * 2, inner 1/8" * 2
BIOBGCAP382001	38 mm, 2-port	2 ports, no tubing; 1/4" x 2, inner 1/8" x 2
BIOBGCAP482001	48 mm, 2-port	2 ports, no tubing; 1/4" * 2, inner 1/4" * 2
BIOBGCAP802001	80 mm, 2-port	2 ports, no tubing; 1/4" * 2, inner 1/4" * 2
BIOBGCAP203001	20 mm, 3-port	3 ports, no tubing; 1/8" * 3, inner 1/8" * 2
BIOBGCAP383001	38 mm, 3-port	3 ports, no tubing; 1/4" * 3, inner 1/8" * 2
BIOBGCAP483001	48 mm, 3-port	3 ports, no tubing; 1/4" * 3, inner 1/4" * 2
BIOBGCAP803001	80 mm, 3-port	3 ports, no tubing; 1/4" * 3, inner 1/4" * 2

Product code - non-sterile	Product Description	Line
BIOBGCBP200001	20 mm, regular	No port, no tubing
BIOBGCBP380001	38 mm, regular	
BIOBGCBP480001	48 mm, regular	
BIOBGCBP800001	80 mm, regular	
BIOBGCBP202001	20 mm, 2-port	2 ports, no tubing; 1/8" * 2, inner 1/8" * 2
BIOBGCBP382001	38 mm, 2-port	2 ports, no tubing; 1/4" x 2, inner 1/8" x 2
BIOBGCBP482001	48 mm, 2-port	2 ports, no tubing; 1/4" * 2, inner 1/4" * 2
BIOBGCBP802001	80 mm, 2-port	2 ports, no tubing; 1/4" * 2, inner 1/4" * 2
BIOBGCBP203001	20 mm, 3-port	3 ports, no tubing; 1/8" * 3, inner 1/8" * 2
BIOBGCBP383001	38 mm, 3-port	3 ports, no tubing; 1/4" * 3, inner 1/8" * 2
BIOBGCBP483001	48 mm, 3-port	3 ports, no tubing; 1/4" * 3, inner 1/4" * 2
BIOBGCBP803001	80 mm, 3-port	3 ports, no tubing; 1/4" * 3, inner 1/4" * 2

## Cap - with silicone tubing

Product code - sterile	Product code - non-sterile	Product Description	Line
BIOBGCAP202002	BIOBGCBP202002	20 mm, 2-port	Outer tubing 1: silicone tubing with metal ring, 1/8" x 1/4", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/8" x 1/4", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/8" x 1/4", bottoming
BIOBGCAP382002	BIOBGCBP382002	38 mm, 2-port	Outer tubing 1: silicone tubing with metal ring, 1/4" x 7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4" x 7/16", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/8" x 1/4", bottoming
BIOBGCAP482002	BIOBGCBP482002	48 mm, 2-port	Outer tubing 1: silicone tubing with metal ring, 1/4" x 7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4" x 7/16", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/4" x 7/16", bottoming
BIOBGCAP802002	BIOBGCBP802002	80 mm, 2-port	Outer tubing 1: silicone tubing with metal ring, 1/4" x 7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4" x 7/16", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/4" x 7/16", bottoming
BIOBGCAP203002	BIOBGCBP203002	20 mm, 3-port	Outer tubing 1: silicone tubing with metal ring, 1/8" x 1/4", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/8" x 1/4", 10 cm, hydrophobic filter Outer tubing 3: silicone tubing with metal ring, 1/8" x 1/4", 30 cm, MPC-Male Inner tubing: silicone tubing, 1/8" x 1/4", bottoming
BIOBGCAP383002	BIOBGCBP383002	38 mm, 3-port	Outer tubing 1: silicone tubing with metal ring, 1/4" x 7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4" x 7/16", 10 cm, hydrophobic filter Outer tubing 3: silicone tubing with metal ring, 1/4" x 7/16", 30 cm, MPC-Male Inner tubing: silicone tubing, 1/8" x 1/4", bottoming
BIOBGCAP483002	BIOBGCBP483002	48 mm, 3-port	Outer tubing 1: silicone tubing with metal ring, 1/4" x 7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4" x 7/16", 10 cm, hydrophobic filter Outer tubing 3: silicone tubing with metal ring, 1/4" x 7/16", 30 cm, MPC-Male Inner tubing: silicone tubing, 1/4" x 7/16", bottoming
BIOBGCAP803002	BIOBGCBP803002	80 mm, 3-port	Outer tubing 1: silicone tubing with metal ring, 1/4" x 7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4" x 7/16", 10 cm, hydrophobic filter Outer tubing 3: silicone tubing with metal ring, 1/4" x 7/16", 30 cm, MPC-Male Inner tubing: silicone tubing, 1/4" x 7/16", bottoming



## Cap - with welder tubing

Product code - sterile	Product code - non-sterile	Product Description	Line
BIOBGCAP202003	BIOBGCBP202003	20 mm, 2-port	Outer tubing 1: thermoplastic tubing, 1/8"*1/4", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/8"*1/4", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/8"*1/4", bottoming
BIOBGCAP382003	BIOBGCBP382003	38 mm, 2-port	Outer tubing 1: thermoplastic tubing, 1/4"*7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/8"*1/4", bottoming
BIOBGCAP482003	BIOBGCBP482003	48 mm, 2-port	Outer tubing 1: thermoplastic tubing, 1/4"*7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/4"*7/16", bottoming
BIOBGCAP802003	BIOBGCBP802003	80 mm, 2-port	Outer tubing 1: thermoplastic tubing, 1/4"*7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/4"*7/16", bottoming
BIOBGCAP203003	BIOBGCBP20-3-003	20 mm, 3-port	Outer tubings 1 & 2: C-Flex tubing, 1/8"*1/4", 30 cm, plug Outer tubing 3: silicone tubing, 1/8"*1/4", 10 cm, hydrophobic filter Inner tubing: silicone tubing, 1/8"*1/4", bottoming
BIOBGCAP383003	BIOBGCBP383003	38 mm, 3-port	Outer tubing 1: thermoplastic tubing, 1/4"*7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter Outer tubing 3: thermoplastic tubing, 1/4"*7/16", 30 cm, MPC-Male Inner tubing: silicone tubing, 1/8"*1/4", bottoming
BIOBGCAP483003	BIOBGCBP483003	48 mm, 3-port	Outer tubing 1: thermoplastic tubing, 1/4"*7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter Outer tubing 3: thermoplastic tubing, 1/4"*7/16", 30 cm, MPC-Male Inner tubing: silicone tubing, 1/4"*7/16", bottoming
BIOBGCAP803003	BIOBGCBP803003	80 mm, 3-port	Outer tubing 1: thermoplastic tubing, 1/4"*7/16", 30 cm, MPC-Female Outer tubing 2: silicone tubing, 1/4"*7/16", 10 cm, hydrophobic filter Outer tubing 3: thermoplastic tubing, 1/4"*7/16", 30 cm, MPC-Male Inner tubing: silicone tubing, 1/4"*7/16", bottoming



# 2D Storage Solution

## 2D Storage Bag

2D Storage bags are made of multi-layer co-extrusion films. The ship-typed integrated welded outlet helps to minimize residual liquid. The outlet is available in 1/8", 1/4" and 3/8" and can be connected to silicone and thermoplastic tubing. The combination of GVS 2D storage bags with single-use tubings can meet the requirements of different processes and liquids.

## Features

- Volume range: 5 mL–50 L
- Wide applications: for collection of purified components, bulk solution storage, intermediate product storage, medium storage, etc.
- Highly customizable, and configurable with a variety of connectors, hoses, and functional units



2D Storage bags

## Ordering information

[illegible]

[illegible]

# 3D Storage Solution

## Circular Storage Bag

Made of multi-layer co-extrusion films, the sterile circular storage bags are guaranteed very low gas and steam permeability, excellent chemical compatibility and biocompatibility, and good heat seal strength. This ensures their safety in the storage and transportation of feed liquids in various biopharmaceutical processes. The standard circular storage bags are available in various types and specifications (50–500 L). With GVS single-use tubings, the product can meet the requirements of different processes and different liquids.

Product code	Matching type	Line 1	Line 2	Line 3	Film
BIOGGBBPR0050S003	Circular plastic bin 50L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGGBBPR0050S004	Circular plastic bin 50L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGGBBPR0050S005	Circular plastic bin 50L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGGBBPR0050S006	Circular plastic bin 50L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGGBBPR0100S003	Circular plastic bin 100L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGGBBPR0100S004	Circular plastic bin 100L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGGBBPR0100S005	Circular plastic bin 100L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGGBBPR0100S006	Circular plastic bin 100L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGGBBPR0200S003	Circular plastic bin 200L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGGBBPR0200S004	Circular plastic bin 200L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGGBBPR0200S005	Circular plastic bin 200L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGGBBPR0200S006	Circular plastic bin 200L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGGBBPR0300S003	Circular plastic bin 300L	100 cm ID1/2"OD3/4" platinum cured silicone tubing + female MPX	100 cm ID1/2"OD3/4" platinum cured silicone tubing + male MPX	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGGBBPR0300S004	Circular plastic bin 300L	100 cm ID1/2"OD3/4" thermoplastic tubing + plug	100 cm ID1/2"OD3/4" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGGBBPR0300S005	Circular plastic bin 300L	100 cm ID1/2"OD3/4" platinum cured silicone tubing + female MPX	100 cm ID1/2"OD3/4" platinum cured silicone tubing + male MPX	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGGBBPR0300S006	Circular plastic bin 300L	100 cm ID1/2"OD3/4" thermoplastic tubing + plug	100 cm ID1/2"OD3/4" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGGBBPR0500S003	Circular plastic bin 500L	100 cm ID1/2"OD3/4" platinum cured silicone tubing + female MPX	100 cm ID1/2"OD3/4" platinum cured silicone tubing + male MPX	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGGBBPR0500S004	Circular plastic bin 500L	100 cm ID1/2"OD3/4" thermoplastic tubing + plug	100 cm ID1/2"OD3/4" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGGBBPR0500S005	Circular plastic bin 500L	100 cm ID1/2"OD3/4" platinum cured silicone tubing + female MPX	100 cm ID1/2"OD3/4" platinum cured silicone tubing + male MPX	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGGBBPR0500S006	Circular plastic bin 500L	100 cm ID1/2"OD3/4" thermoplastic tubing + plug	100 cm ID1/2"OD3/4" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Domestic

## Cubic Storage Bag: Matching Cubic Plastic Bin

Made of multi-layer co-extrusion films, the sterile cubic storage bags are guaranteed very low gas and steam permeability, excellent chemical compatibility and biocompatibility, and good heat seal strength. This ensures their safety in the storage and transportation of feed liquids in various biopharmaceutical processes. The standard cubic storage bags are available in various types and specifications (50–1000 L). With GVS single-use tubings, the product can meet the requirements of different processes and different liquids.

### Ordering information

Product code	Matching type	Line 1	Line 2	Line 3	Film
BIOGBBPC0100S003	cubic collapsible plastic bin 250 L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBBPC0100S004	cubic collapsible plastic bin 250 L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGBBPC0100S005	cubic collapsible plastic bin 250 L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBBPC0100S006	cubic collapsible plastic bin 250 L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGBBPC0250S003	cubic collapsible plastic bin 250 L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBBPC0250S004	cubic collapsible plastic bin 250 L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGBBPC0250S005	cubic collapsible plastic bin 250 L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBBPC0250S006	cubic collapsible plastic bin 250 L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGBBPC1000S003	cubic collapsible plastic bin 1000 L	100 cm ID3/4"OD1" platinum cured silicone tubing + TC50	100 cm ID3/4"OD1" platinum cured silicone tubing + TC50	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBBPC1000S005	cubic collapsible plastic bin 1000 L	100 cm ID3/4"OD1" platinum cured silicone tubing + TC50	100 cm ID3/4"OD1" platinum cured silicone tubing + TC50	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBBCPC0050S003	C series cubic plastic tank 50 L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBBCPC0050S007	C series cubic plastic tank 50 L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGBBCPC0050S005	C series cubic plastic tank 50 L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBBCPC0050S008	C series cubic plastic tank 50 L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGBBCPC0100S003	C series cubic plastic tank 100 L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBBCPC0100S007	C series cubic plastic tank 100 L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGBBCPC-0100-S005	C series cubic plastic tank 100 L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBBCPC0100S008	C series cubic plastic tank 100 L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGBBCPC0200S003	C series cubic plastic tank 200 L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBBCPC0200S007	C series cubic plastic tank 200 L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGBBCPC0200S005	C series cubic plastic tank 200 L	100 cm ID3/8"OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4"OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBBCPC0200S008	C series cubic plastic tank 200 L	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	100 cm ID3/8"OD5/8" thermoplastic tubing + plug	30 cm ID1/4"OD7/16" thermoplastic tubing + needleless sampling	Domestic

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Product code	Matching type	Line 1	Line 2	Line 3	Film
BIOGBSPC0100S003	S series cubic plastic tank 100 L	100 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8**OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBSPC0100S007	S series cubic plastic tank 100 L	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGBSPC0100S005	S series cubic plastic tank 100 L	100 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8**OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBSPC0100S008	S series cubic plastic tank 100 L	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGBSPC0200S003	S series cubic plastic tank 200 L	100 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8**OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBSPC0200S007	S series cubic plastic tank 200 L	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGBSPC0200S005	S series cubic plastic tank 200 L	100 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8**OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBSPC0200-008	S series cubic plastic tank 200 L	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGBSPC0500S003	S series cubic plastic tank 500 L	100 cm ID1/2**OD3/4" platinum cured silicone tubing + female MPX	100 cm ID1/2**OD3/4" platinum cured silicone tubing + male MPX	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBSPC0500S007	S series cubic plastic tank 500 L	100 cm ID1/2**OD3/4" thermoplastic tubing + plug	100 cm ID1/2**OD3/4" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGBSPC0500S005	S series cubic plastic tank 500 L	100 cm ID1/2**OD3/4" platinum cured silicone tubing + female MPX	100 cm ID1/2**OD3/4" platinum cured silicone tubing + male MPX	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBSPC0500S008	S series cubic plastic tank 500 L	100 cm ID1/2**OD3/4" thermoplastic tubing + plug	100 cm ID1/2**OD3/4" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	Domestic



# Cubic Storage Bag: Matching Cubic Stainless Steel Tank

Made of multi-layer co-extrusion films, the sterile cubic storage bags are guaranteed very low gas and steam permeability, excellent chemical compatibility and biocompatibility, and good heat seal strength. This ensures their safety in the storage and transportation of feed liquids in various biopharmaceutical processes. The standard cubic storage bags are available in various types and specifications (50–1000 L). With GVS single-use tubings, the product can meet the requirements of different processes and different liquids.

## Ordering information

Product code	Matching type	Line 1	Line 2	Line 3	Film
BIOGBBSC0100S003	cubic stainless steel tank 100 L	100 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8**OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBBSC0100S004	cubic stainless steel tank 100 L	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGBBSC0100S005	cubic stainless steel tank 100 L	100 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8**OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBBSC0100S006	cubic stainless steel tank 100 L	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGBBSC0200S003	cubic stainless steel tank 200 L	100 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8**OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBBSC0200S004	cubic stainless steel tank 200 L	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGBBSC0200S005	cubic stainless steel tank 200 L	100 cm ID3/8**OD5/8" platinum cured silicone tubing + female MPC	100 cm ID3/8**OD5/8" platinum cured silicone tubing + male MPC	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBBSC0200S006	cubic stainless steel tank 200 L	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	100 cm ID3/8**OD5/8" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGBBSC0500S003	cubic stainless steel tank 500 L	100 cm ID1/2**OD3/4" platinum cured silicone tubing + female MPX	100 cm ID1/2**OD3/4" platinum cured silicone tubing + male MPX	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBBSC0500S004	cubic stainless steel tank 500 L	100 cm ID1/2**OD3/4" thermoplastic tubing + plug	100 cm ID1/2**OD3/4" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	Imported
BIOGBBSC0500S005	cubic stainless steel tank 500 L	100 cm ID1/2**OD3/4" platinum cured silicone tubing + female MPX	100 cm ID1/2**OD3/4" platinum cured silicone tubing + male MPX	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBBSC0500S006	cubic stainless steel tank 500 L	100 cm ID1/2**OD3/4" thermoplastic tubing + plug	100 cm ID1/2**OD3/4" thermoplastic tubing + plug	30 cm ID1/4**OD7/16" thermoplastic tubing + needleless sampling	Domestic
BIOGBBSC1000S003	cubic stainless steel tank 1000 L	100 cm ID3/4**OD1" platinum cured silicone tubing + TC50	100 cm ID3/4**OD1" platinum cured silicone tubing + TC50	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBBSC1000S005	cubic stainless steel tank 1000 L	100 cm ID3/4**OD1" platinum cured silicone tubing + TC50	100 cm ID3/4**OD1" platinum cured silicone tubing + TC50	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBBSC2000S003	cubic stainless steel tank 2000 L	100 cm ID3/4**OD1" platinum cured silicone tubing + TC50	100 cm ID3/4**OD1" platinum cured silicone tubing + TC50	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBBSC2000S005	cubic stainless steel tank 2000 L	100 cm ID3/4**OD1" platinum cured silicone tubing + TC50	100 cm ID3/4**OD1" platinum cured silicone tubing + TC50	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Domestic
BIOGBBSC3000S003	cubic stainless steel tank 1000 L	100 cm ID3/4**OD1" platinum cured silicone tubing + TC50	100 cm ID3/4**OD1" platinum cured silicone tubing + TC50	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Imported
BIOGBBSC3000S005	cubic stainless steel tank 1000 L	100 cm ID3/4**OD1" platinum cured silicone tubing + TC50	100 cm ID3/4**OD1" platinum cured silicone tubing + TC50	30 cm ID1/4**OD7/16" platinum cured silicone tubing + needleless sampling	Domestic

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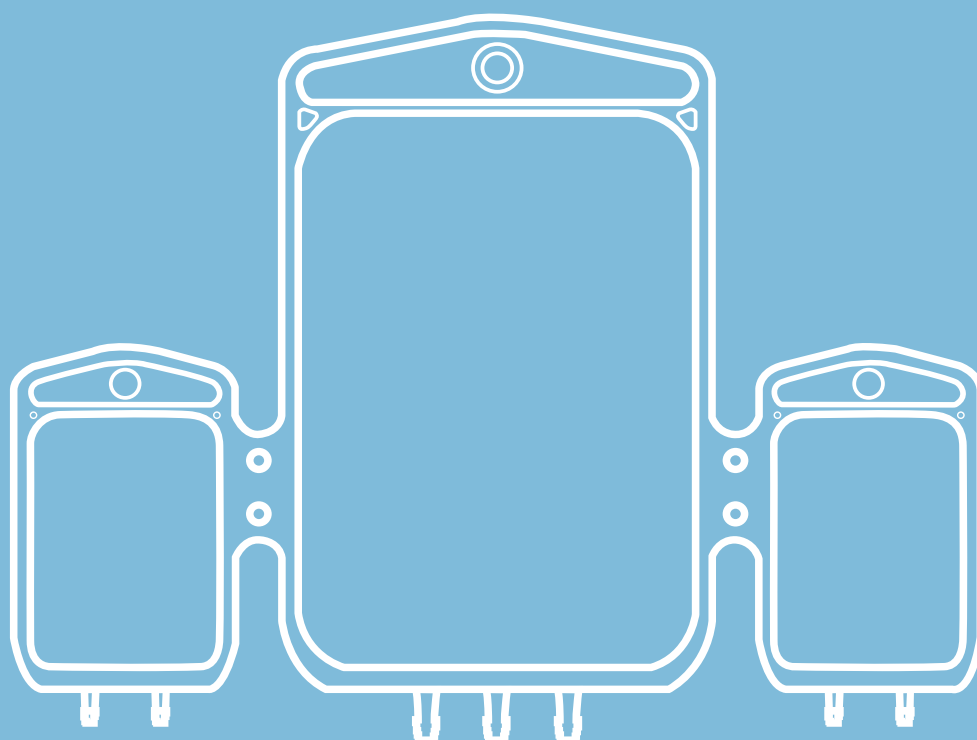
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## RNase-free Disposable Consumables

mRNA is a new-generation technology platform that is expected to change traditional ways of vaccines and monoclonal anti-body development and manufacturing. Due to its short R&D cycle, simple production process, strong immunogenicity, and high safety, mRNA has the potential to be widely applied in various fields such as vaccines for infectious diseases, tumor immunology, and recombinant protein. Even though mRNA vaccines are booming, the mRNA drugs are in low profile. To date, there is no particularly welcomed mRNA drug, mainly due to the difficulty of mRNA drug development - the higher the purity, the stronger the druggability.

However, due to ubiquitous RNase in the environment, mRNA is easily contaminated, which is why Moderna has invested heavily in building a nuclease-free laboratory (RNase-free Lab). The construction costs are as high as tens of millions of dollars; and with subsequent operations and maintenance, the cost requires an investment of hundreds of millions of dollars. This is possibly why the development of many mRNA drugs is stalled.

Ribonuclease (RNase) is a class of nucleic acid hydrolases that are widely found in animals and plants. Due to its “ubiquitous” nature, it is necessary to take multiple and complex clean-ups to eliminate the effects of RNase in the mRNA production process, which greatly reduces production efficiency. Meanwhile, the process validation and verification of RNase removal are also time-consuming and labor-intensive. Therefore, RNase-free disposable consumables are highly welcomed by mRNA manufacturers using single-use bioprocess technology for production. In addition, the RNase level within those consumables shall be inspected before release and can be verified post-use without damage.



As a supplier of bioprocess disposable equipment and consumables for bioprocessing, GVS has launched an innovative design and comprehensive solution of master bag + double satellite bags for the first time with 100% RNase/ DNase inspection and release of products as well as customer verification.



Features

- Innovative design of master bag + double satellite bags (enabling 100% individual inspection of RNase-/DNase-free bags)
- Identical material/production environment of the master bag and satellite bag
- Satellite bag-1 (QC release): for RNase inspection prior to product release
- Satellite bag-2 (customer verification): for customer verification test before/after use
- Different sizes/models of bioprocess disposable products (Storage bags + Bioreactor bags + Cell bags, etc.)
- High-standard production environment control and monthly RNase monitoring

Nuclease-free Single-Use Consumables		DNase-free/ RNase-free/ Nuclease-free (DNase-free & RNase-free)
Single-use storage bottle	Batch inspection	
Single-use 2D storage bag	Individual/hybrid/batch inspection	
Single-use 3D storage bag	Individual/hybrid/batch inspection	
Single-use mixing bag	Individual/hybrid/batch inspection	
Single-use cell bag/mixing bag	Individual/hybrid/batch inspection	
Single-use bioreactor bag	Individual/hybrid/batch inspection	



## Ordering information

DNase-free product code	RNase-free product code	Nuclease-free product code	Volume	Product name	Matching type	Package
BIOGBTA5ML001D	BIOGBTA5ML001R	BIOGBTA5ML001N	5 ml	5 ml single-use storage bottle	Regular cap	200
BIOGBTA20ML001D	BIOGBTA20ML001R	BIOGBTA20ML001N	20 ml	20 ml single-use storage bottle		200
BIOGBTA50ML001D	BTA50ML001R	BIOGBTA50ML001N	50 ml	50 ml single-use storage bottle		120
BIOGBTA125ML001D	BTA125ML001R	BIOGBTA125ML001N	125 ml	125 ml single-use storage bottle		60
BIOGBTA250ML001D	BTA250ML001R	BIOGBTA250ML001N	250 ml	250 ml single-use storage bottle		40
BIOGBTA500ML001D	BTA500ML001R	BIOGBTA500ML001N	500 ml	500 ml single-use storage bottle		20
BIOGBTA1L001D	BIOGBTA1L001R	BIOGBTA1L001N	1L	1 L single-use storage bottle		25
BIOGBTA2L001D	BIOGBTA2L001R	BIOGBTA2L001N	2L	2 L single-use storage bottle		16
BIOGBTA5ML002D	BIOGBTA5ML002R	BIOGBTA5ML002N	5 ml	5 ml single-use storage bottle	2-port cap	200
BIOGBTA20ML002D	BIOGBTA20ML002R	BIOGBTA20ML002N	20 ml	20 ml single-use storage bottle		200
BIOGBTA50ML002D	BIOGBTA50ML002R	BIOGBTA50ML002N	50 ml	50 ml single-use storage bottle		120
BIOGBTA125ML002D	BIOGBTA125ML002R	BIOGBTA125ML002N	125 ml	125 ml single-use storage bottle		60
BIOGBTA250ML002D	BIOGBTA250ML002R	BIOGBTA250ML002N	250 ml	250 ml single-use storage bottle		40
BIOGBTA500ML002D	BIOGBTA500ML002R	BIOGBTA500ML002N	500 ml	500 ml single-use storage bottle		20
BIOGBTA1L002D	BIOGBTA1L002R	BIOGBTA1L002N	1 L	1 L single-use storage bottle		25
BIOGBTA2L002D	BIOGBTA2L002R	BIOGBTA2L002N	2 L	2 L single-use storage bottle		16
BIOGBTA5ML003D	BIOGBTA5ML003R	BIOGBTA5ML003N	5 ml	5 ml single-use storage bottle	3-port cap	200
BIOGBTA20ML003D	BIOGBTA20ML003R	BIOGBTA20ML003N	20 ml	20 ml single-use storage bottle		200
BIOGBTA50ML003D	BIOGBTA50ML003R	BIOGBTA50ML003N	50 ml	50 ml single-use storage bottle		120
BIOGBTA125ML003D	BIOGBTA125ML003R	BIOGBTA125ML003N	125 ml	125 ml single-use storage bottle		60
BIOGBTA250ML003D	BIOGBTA250ML003R	BIOGBTA250ML003N	250 ml	250 ml single-use storage bottle		40
BIOGBTA500ML003D	BIOGBTA500ML003R	BIOGBTA500ML003N	500 ml	500 ml single-use storage bottle		20
BIOGBTA1L003D	BIOGBTA1L003R	BIOGBTA1L003N	1 L	1 L single-use storage bottle		25
BIOGBTA2L003D	BIOGBTA2L003R	BIOGBTA2L003N	2 L	2 L single-use storage bottle		16

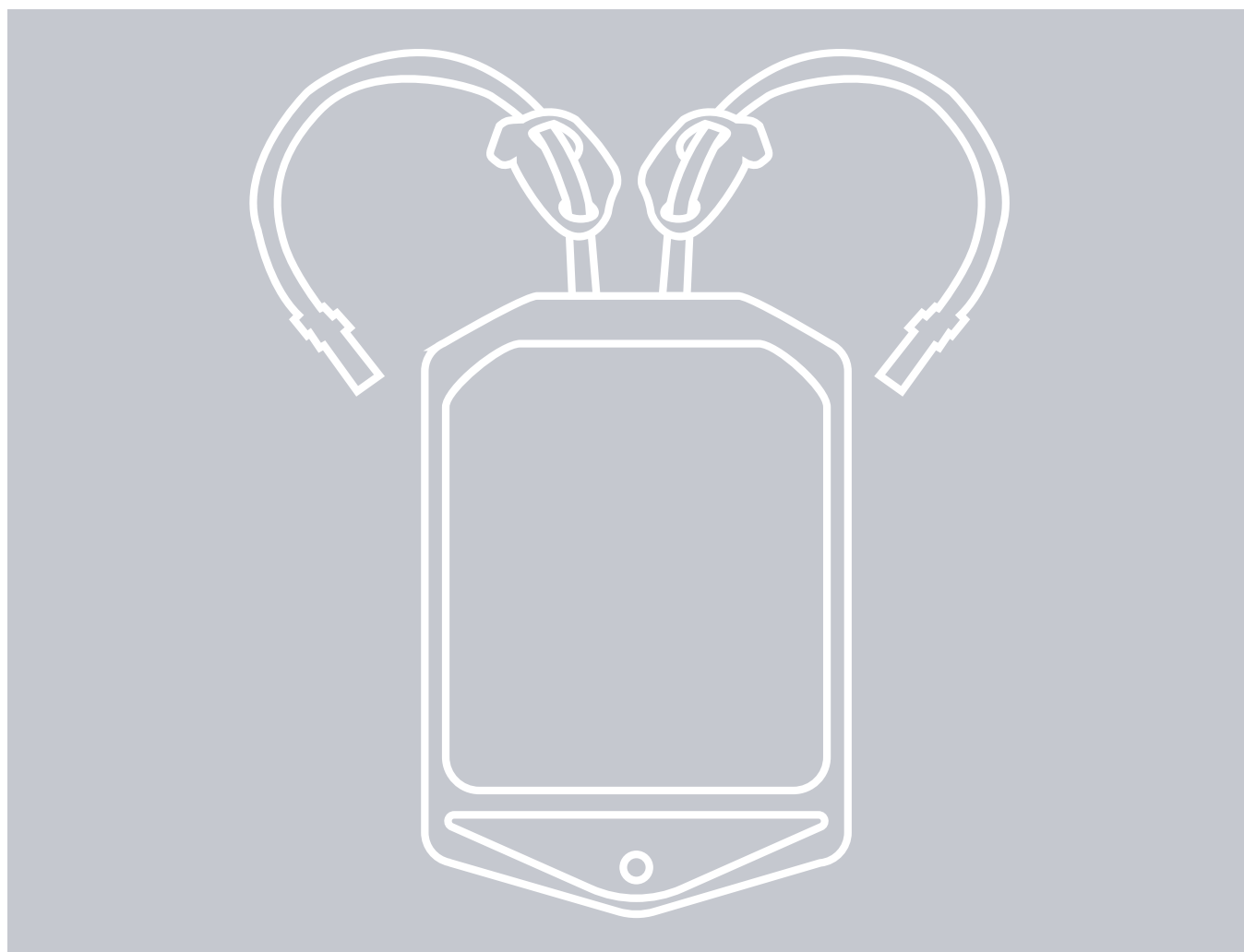
DNase-free product code	RNase-free product code	Nuclease-free product code	Volume	Line
BIOGBD0001S003	BIOGBR0001S003	BIOGBN0001S003	1 L	50 ml satellite bag 20 cm ID1/8"OD1/4" platinum cured silicone tubing + female Luer
				30 cm ID1/4" * OD7/16" Platinum 50 platinum cured silicone tubing + AseptiQuik® G connector
BIOGBD0002S003	BIOGBR0002S003	BIOGBN0002S003	2 L	30 cm ID1/4" * OD7/16" Platinum 50 platinum cured silicone tubing + AseptiQuik® G connector 20 cm ID1/4"OD7/16" C-Flex thermoplastic tubing + needleless sampling
BIOGBD0005S003	BIOGBR0005S003	BIOGBN0005S003	5 L	
BIOGBD0010S003	BIOGBR0010S003	BIOGBN0010S003	10 L	50 ml satellite bag 20 cm ID1/8"OD1/4" platinum cured silicone tubing + female Luer
				30 cm ID3/8" * OD5/8" Platinum 50 platinum cured silicone tubing + AseptiQuik® G connector
BIOGBD0020S003	BIOGBR0020S003	BIOGBN0020S003	20 L	30 cm ID3/8" * OD5/8" Platinum 50 platinum cured silicone tubing + AseptiQuik® G connector 20 cm ID1/4"OD7/16" C-Flex thermoplastic tubing + needleless sampling
BIOGBD0050S003	BIOGBR0050S003	BIOGBN0050S003	50 L	
BIOGBD0001S004	BIOGBR0001S004	BIOGBN0001S004	1 L	50 ml satellite bag 10 cm ID1/8"OD1/4" platinum cured silicone tubing+ 10 cm ID1/8"OD1/4" C-Flex thermoplastic tubing + female Luer
				30 cm ID1/4" * OD7/16" Platinum 50 platinum cured silicone tubing + female MPC
BIOGBD0002S004	BIOGBR0002S004	BIOGBN0002S004	2 L	30 cm ID1/4" * OD7/16" C-Flex thermoplastic tubing + male MPC 20 cm ID1/4"OD7/16" C-Flex thermoplastic tubing + plug
BIOGBD0005S004	BIOGBR0005S004	BIOGBN0005S004	5 L	
BIOGBD0010S004	BIOGBR0010S004	BIOGBN0010S004	10 L	50 ml satellite bag 10 cm ID1/8"OD1/4" platinum cured silicone tubing + 10 cm ID1/8"OD1/4" C-Flex thermoplastic tubing + female Luer
				30 cm ID3/8" * OD5/8" Platinum 50 platinum cured silicone tubing + female MPC
BIOGBD0020S004	BIOGBR0020S004	BIOGBN0020S004	20 L	30 cm ID3/8" * OD5/8" C-Flex thermoplastic tubing + female MPC 20 cm ID1/4"OD7/16" C-Flex thermoplastic tubing + plug
BIOGBD0050S004	BIOGBR0050S004	BIOGBN0050S004	50 L	

DNase-free product code	RNase-free product code	Nuclease-free product code	Volume	Line
BIOGBD0001S005	BIOGBR0001S005	BIOGBN0001S005	1 L	50 ml satellite bag 10 cm ID1/8" * OD1/4" platinum cured silicone tubing + 10 cm ID1/8" * OD1/4" C-Flex thermoplastic tubing + female Luer
				30 cm ID1/4" * OD7/16" Platinum 50 platinum cured silicone tubing + TC25 quick connector
				30 cm ID1/4" * OD7/16" C-Flex thermoplastic tubing + TC25 quick connector
BIOGBD0002S005	BIOGBR0002S005	BIOGBN0002S005	2 L	20 cm ID1/4" * OD7/16" C-Flex thermoplastic tubing + needleless sampling
BIOGBD0005S005	BIOGBR0005S005	BIOGBN0005S005	5 L	
BIOGBD0010S005	BIOGBR0010S005	BIOGBN0010S005	10 L	50 ml satellite bag 10 cm ID1/8" * OD1/4" platinum cured silicone tubing + 10 cm ID1/8" * OD1/4" C-Flex thermoplastic tubing + female Luer
				30 cm ID3/8" * OD5/8" Platinum 50 platinum cured silicone tubing + TC25 quick connector
				30 cm ID3/8" * OD5/8" C-Flex thermoplastic tubing + TC25 quick connector
				20 cm ID1/4" * OD7/16" C-Flex thermoplastic tubing + needleless sampling
BIOGBD0020S005	BIOGBR0020S005	BIOGBN0020S005	20 L	
BIOGBD0050S005	BIOGBR0050S005	BIOGBN0050S005	50 L	

# Sterile Sampling System

Product sampling is necessary and critical for cell culture and other operations in biopharmaceutical processes. Samples collected through Sampling Bags can be used to determine critical purity attributes, such as sterility, endotoxin levels, bioburden, and important cell culture parameters including metabolites, nutrient levels, pH, and osmolarity.

Sterile Sampling Systems provides a pre-assembled sampling solution. It is specially designed for sampling operations at various stages of biopharmaceutical processes such as in-process monitoring of buffer storage, medium preparation, product collection and analysis. To mitigate the risk of residual contamination and ensure the safety of bio-process, the product is sterilized by irradiation prior to delivery.



## Features

- Types of sampling container: bags and bottles
- Volume range: sampling bag 50 mL to 1 L, sampling bottle 20 mL to 250 mL
- 2 mm needle, covers a variety of liquid sampling needs in the entire bio-process
- The material of the liquid contact layer of both the sampling bags (ULDPE) and sampling bottles (PC) complies with bio-pharmaceutical requirements
- High transparency and excellent compatibility
- Overmolded needles and tubings for assurance of airtightness and sterility
- Adequate validation documents to ensure safety in use
- Operating temperature range: sampling bag – 80 ° C to 60 ° C, sampling bottle – 80 ° C to 121 ° C
- Maximum operating pressure: single-needle, single-bag products: 0.5 bar; single-needle, 5-bag products: 0.3 bar
- Customization available

## Validation Documents

- 100% integrity testing
- USP<665>, Extractable testing
- USP <88> , Class VI plastics
- USP <87>, Cytotoxicity
- USP <788>, Particulate Matter in Injections
- USP<85>, Bacterial Endotoxins
- ISO 11137, Sterility testing
- ISO 10993-4, Hemolysis testing



## Ordering information

### Sampling bag

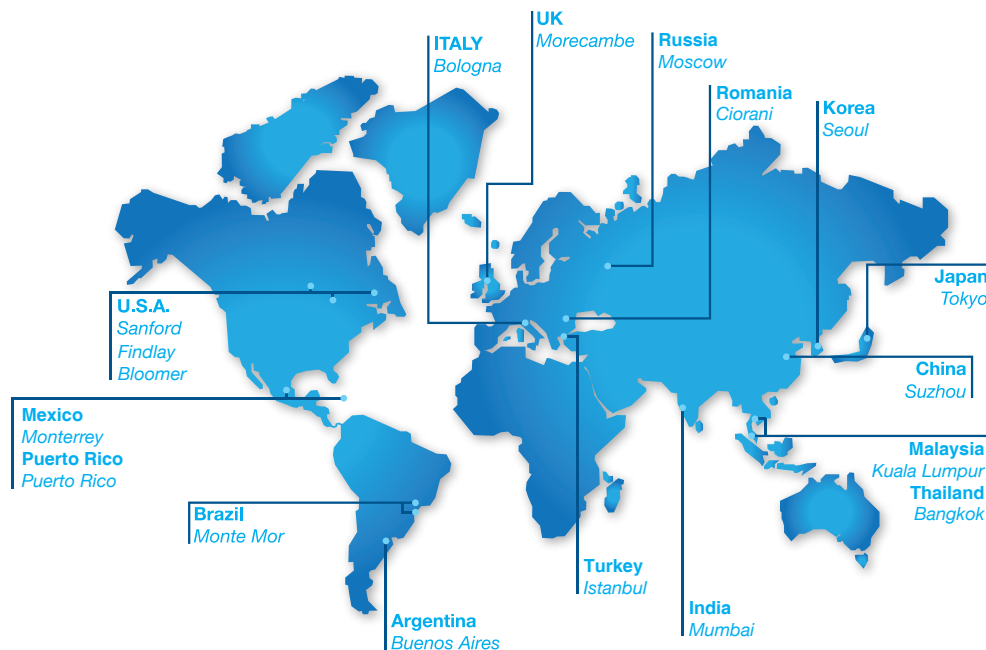
Product code	Volume	Inlet tubing	Outlet tubing
BIOGBSX050S005	50 mL	2 mm needle, silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with a metal ring for sterile disconnection	Silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with needleless sam-pling
BIOGBSX100S005	100 mL		
BIOGBSX250S005	250 mL		
BIOGBSX500S005	500 mL		
BIOGBSX0001S005	1000 mL	2 mm needle, silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with a metal ring for sterile disconnection	Silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with needleless sam-pling
BIOGBSX050S006	2 × 50 mL		
BIOGBSX100S006	2 × 100 mL		
BIOGBSX250S006	2 × 250 mL		
BIOGBSX050S007	3 × 50 mL	2 mm needle, silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with a metal ring for sterile disconnection	Silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with needleless sam-pling
BIOGBSX100S007	3 × 100 mL		
BIOGBSX250S007	3 × 250 mL		
BIOGBSX050S008	5 × 50 mL	2 mm needle, silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with a metal ring for sterile disconnection	Silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with needleless sam-pling
BIOGBSX100S008	5 × 100 mL		
BIOGBSX250S008	5 × 250 mL		

### Sampling bottle

Product code	Volume	Inlet tubing	Outlet tubing
BIOGTSTGST037	20 mL	2 mm needle, silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with metal ring for ster-ile disconnection	Silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with vent filter
BIOGTSTGST038	50 mL		
BIOGTSTGST039	125 mL		
BIOGTSTGST040	250 mL		
BIOGTSTGST041	2 × 20 mL	2 mm needle, silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with metal ring for ster-ile disconnection	Silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with vent filter
BIOGTSTGST042	2 × 50 mL		
BIOGTSTGST043	2 × 125 mL		
BIOGTSTGST044	2 × 250 mL		
BIOGTSTGST045	3 × 20 mL	2 mm needle, silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with metal ring for ster-ile disconnection	Silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with vent filter
BIOGTSTGST046	3 × 50 mL		
BIOGTSTGST047	3 × 125 mL		
BIOGTSTGST048	3 × 250 mL		
BIOGTSTGST049	5 × 20 mL	2 mm needle, silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with metal ring for ster-ile disconnection	Silicone tubing, ID 3.2 mm*OD 6.4 mm, 25 cm in length, with vent filter
BIOGTSTGST050	5 × 50 mL		
BIOGTSTGST051	5 × 125 mL		
BIOGTSTGST052	5 × 250 mL		

### Sampling unit

Product code	Volume	Inlet tubing	Outlet tubing
BIOGTSTGST053	-	2 mm needle, silicone tubing, 3.2 mm (ID) × 6.4 mm (OD), 50 cm in length, with a metal ring for sterile disconnection and a male Luer and cap at the end	
BIOGTSTGST054	-	2 mm needle, C-Flex tubing, 3.2 mm (ID) × 6.4 mm (OD), 50 cm in length, with a male Luer and cap at the end	
BIOGTSTGST055	-	2 mm needle, PVC tubing, 3.2 mm (ID) × 6.4 mm (OD), 50 cm in length, with a male Luer and cap at the end	



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## PRODUCT COLLECTION - Bio Processing

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Printing History: Version 06022025