



BIO PROCESSING CATALOG





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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 compatibility (pH 1-14)
- Special hydrophilic materials

Applications

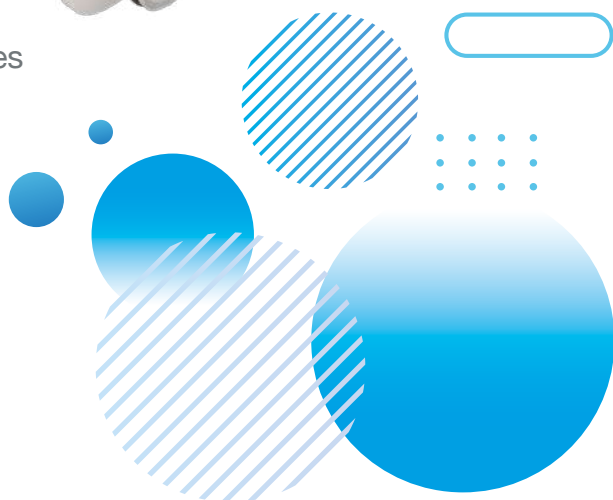
- large volume parenterals (LVP)
- Biological reagent filtration
- Ophthalmics filtration
- Aseptic filtration for detergent and disinfectant

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
 Support/Diversion
 Core/Cage/End Cap

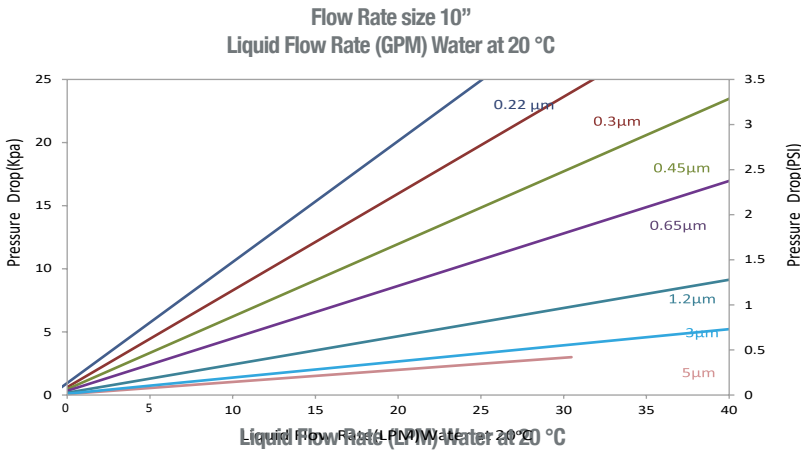
Polyethersulfone (PES)
 Polypropylene
 Polypropylene

Performance

Max Operating Temperature
 Max. Operating DP

80 °C
 4.0 bar @20 °C
 2.4 bar @80 °C (Forward)
 125 °C / 30 min

SIP



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

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 = DOE	P = Polypro	S = Silicone	S= Standard	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	Y = SS reinforcement (Endcap D0, E2, K1, K2, excluded)	
		0120 = 1.2µm		30 = 30"		H2 = 222/Flat		F = E-FKM		
		0300 = 3µm		40 = 40"		H5 = 222/Spear Fin				
		0500 = 5µm				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

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

Dimension

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

Quality

- Validated with B. diminuta (ATCC 191463) at 107/CM2 (0.22 µm).
- 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.

Integrity Test		
Micron	Bubble Point ≥ (Water)	Diffusion Flow ≤ (10" Ø69mm)
0.22 µm	3.2 bar	35ml / min @ 2.76 bar
0.45 µm	2.1 bar	35ml / min @ 1.70 bar
0.65 µm	1.32 bar	24ml / min @ 1.1 bar

Effluent quality

- Non-fiber releasing
- Extractable 10 inch ≤ 25 mg
- 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

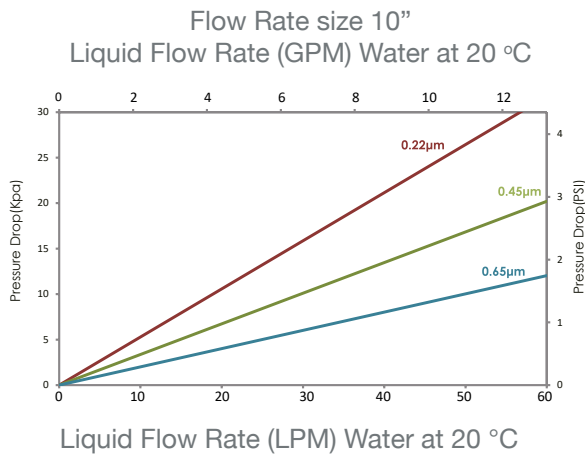
Autoclave Sterilization 121 °C, 60 Min

Filtration Area

Ø 69mm 0.65 m² / 10" Filter cartridges

Extractables

10" Filter Cartridges < 20mg



Eg.=> GFPPS0010S050AD0PSS0

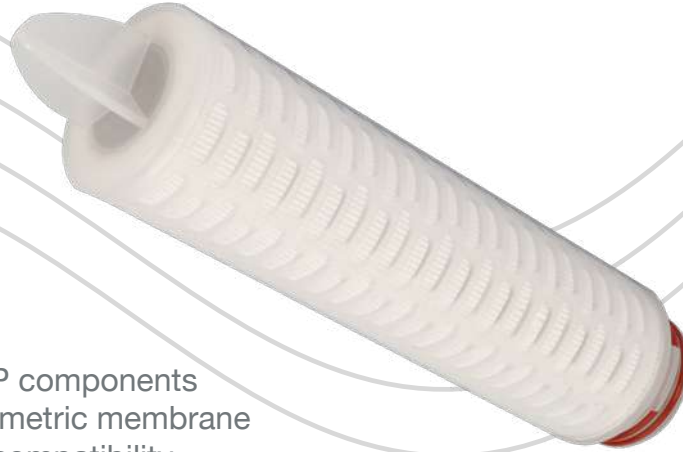
ORDERING INFORMATION

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 (Endcap D0, E2, K1, K2, excluded)
		0065 = 0.65µm		30 = 30"							H2 = 222/Flat		V = Viton	
				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 107/CM2 (0.22 μ 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

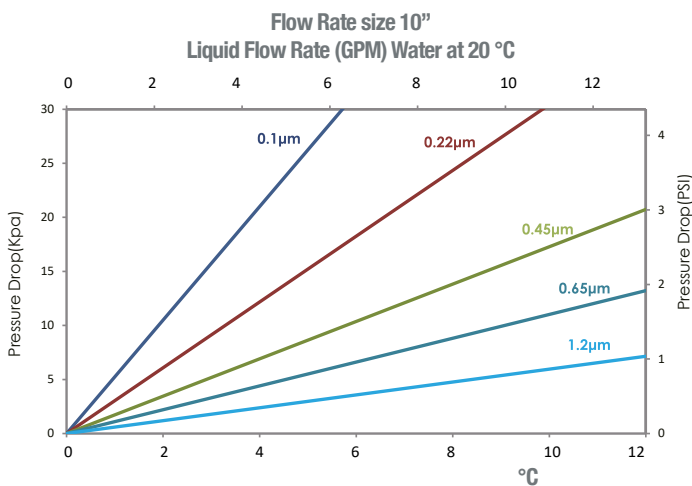
Ø 69mm 0.65 m² / 10" Filter cartridges

Extractables

10" Filter Cartridges < 20 mg

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

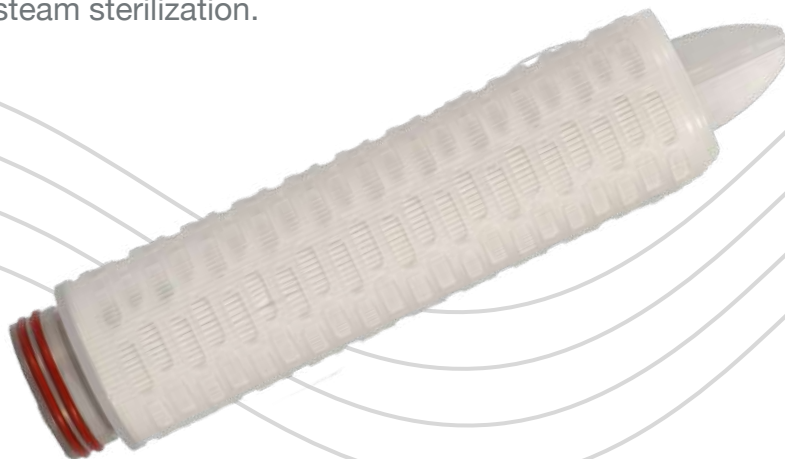
ORDERING INFORMATION

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"	ØA = 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 (Endcap D0, E2, K1, K2, excluded)	
		0065 = 0.65µm		30 = 30"		H2 = 222/Flat		V = Viton		
		0120 = 1.2µm		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

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.



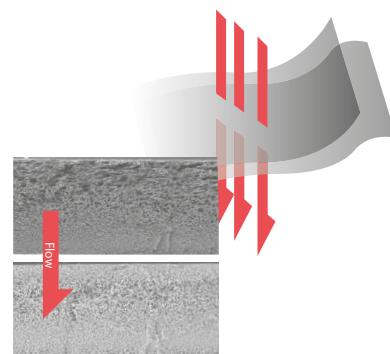
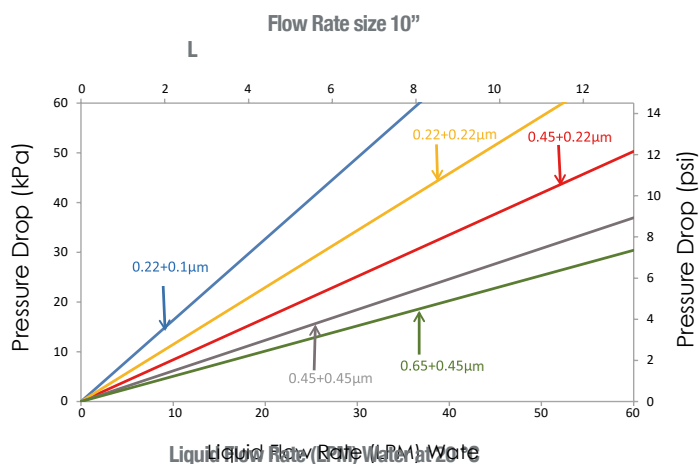
Features

- 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 μm).

- 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



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 ² / 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 pore size	Bubble Point ≥ (Water)	Diffusion Flow ≤ (10" Ø69mm)
2201 = .22/0.1µm	4.8 bar	25ml/min @ 4.475 bar
2222 = .22/.22µm	3.2 bar	25ml/min @ 2.76 bar
0422 = .45/.22µm	3.2 bar	25ml/min @ 1.70 bar
0404 = .45/.45µm	2.1 bar	12ml/min @ 1.1 bar
0604 = .65/.45µm	2.1 bar	25ml/min @ 1.70 bar

Eg.=> CFPSS2201P050AD0PSS0

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 = OD:69 mm	D0 = DOE	P = Polypropylene	S = Silicone	S = Standard	0 = Rev.0
		2222 = .22/.22µm		10 = 10"		E2 = 213/Flat	S = SS Steel	E = EPDM		
		0422 = .45/.22µm		20 = 20"		H1 = 222/Fin		B = NBR	Y = SS reinforcement (Endcap D0, E2, K1, K2, excluded)	
		0404 = .45/.45µm		30 = 30"		H2 = 222/Flat		V = Viton		
		0604 = .65/.45µm		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 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

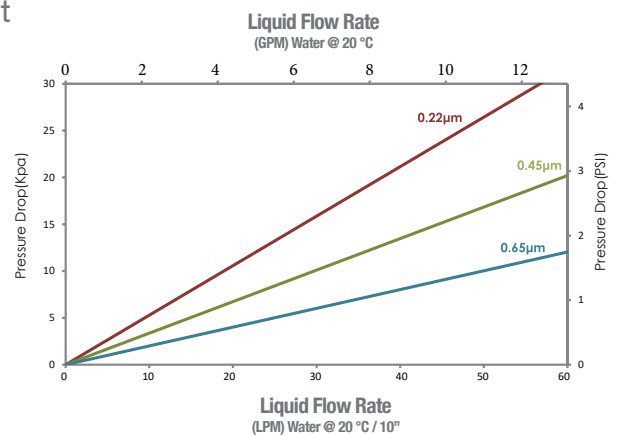
- Highly asymmetric polysulfone membrane provides excellent dirt holding capacity and flow characteristics
- Hydrophilic polysulfone membrane eliminates the need for prewetting and flushing
- Asymmetric membrane structure provides high flow rates with lower differential pressure and a longer life time
- 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
 Max. Operating DP

80 °C
 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.=> CFPSU0003G050AD0PSS0

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
		0020 = 0.20µm		30 = 30"		H2 = 222/Flat					V = Viton	(Endcap D0, E2, K1, K2, excluded)
		0045 = 0.45µm		40 = 40"		H5 = 222/Spear Fin					F = E-FKM	P = PSU reinforcement
		0120 = 1.2µm		K1 = 222 Ext/Fin		(Endcap G1, G2, only)						
	K2 = 222 Ext/Flat											
	G1 = 226/Fin											
	G2 = 226/Flat											
	G5 = 226/Spear Fin											

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

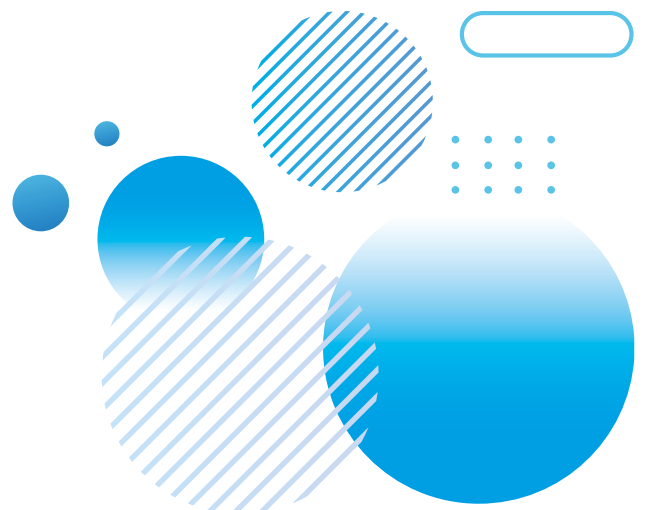
- Food & Beverage
- Plating Chemicals
- RO Pre-Filtration
- Fine Chemicals
- Process Water
- Waste water

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-121C 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

Performance

Operating Conditions

Max. Operating Temperature

80 °C

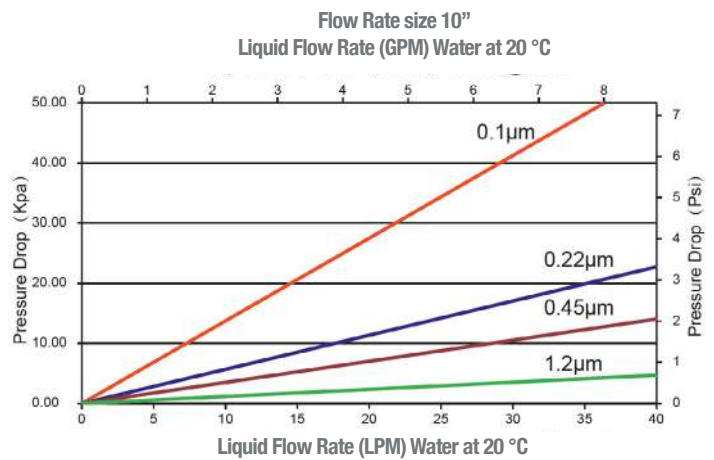
Max. Operating DP

4 bar @ 21° , 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

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	----
7500	75	----



Eg.=> CFPP0010G050AD0PSS0

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	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				
		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 submicron 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 filter 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

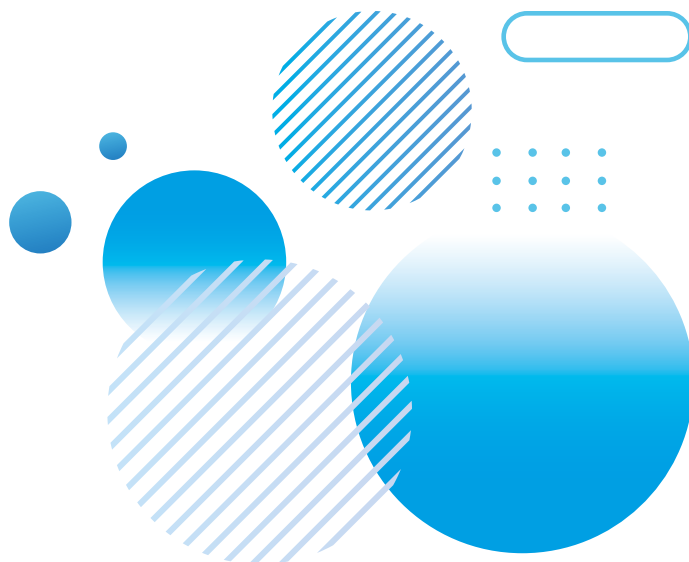
- Pharmaceutical Water
- RO Pre-Filtration
- Fine Chemicals
- Process Water

Filtration Area

Ø 69mm: 0.6 m² / 10" Filter Cartridges

Material of Constructions

- | | |
|---------------------|--|
| • Media: | PP |
| • Support: | PP |
| • Cage/Core/Endcap: | PP |
| • Connection: | PP |
| • Sealing: | Silicone EPDM, NBR, Viton [®] |



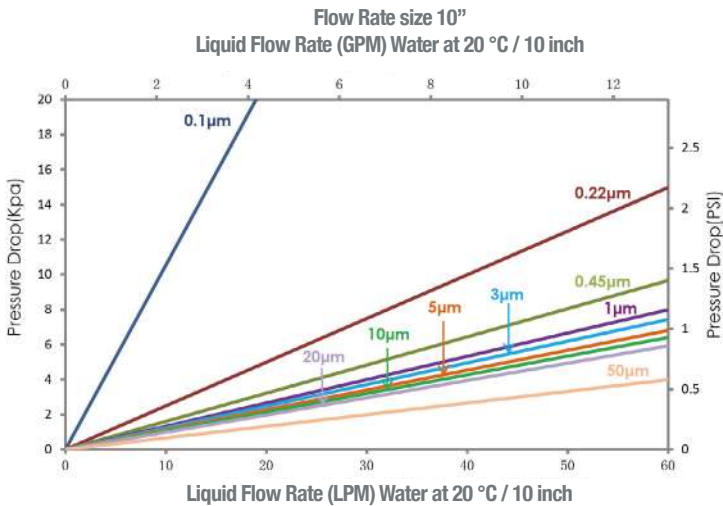
Performance

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-121C 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

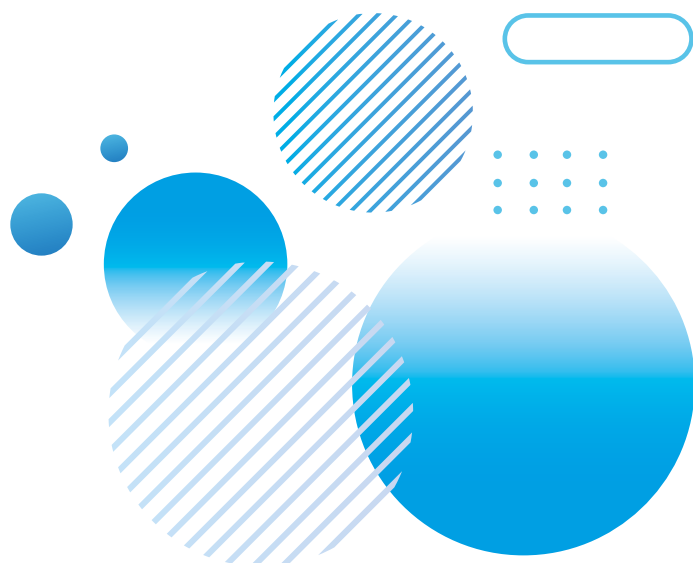
Dimension

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

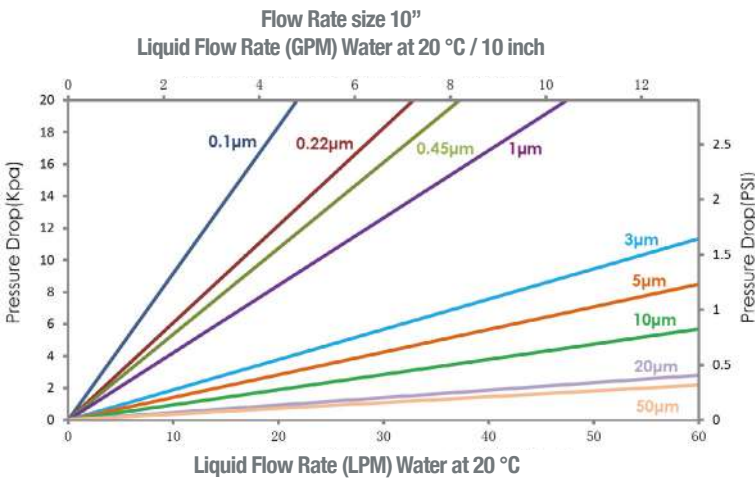
Max. Operating temperature: 80 °C
 Max. Operating DP: 4 bar @ 21°C,
 2.4 bar @ 80 °C

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-121C 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.=> CFPPP001P050AD0PSS0

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	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

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 |



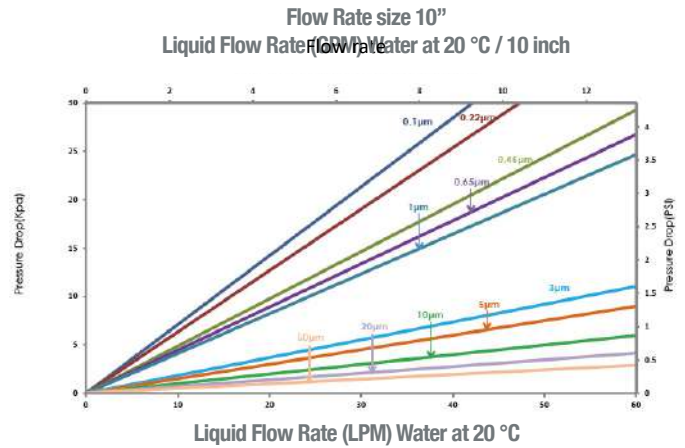
Performance

Max. Operating temperature:
Max. Operating DP:

80 °C
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 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

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	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				
		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

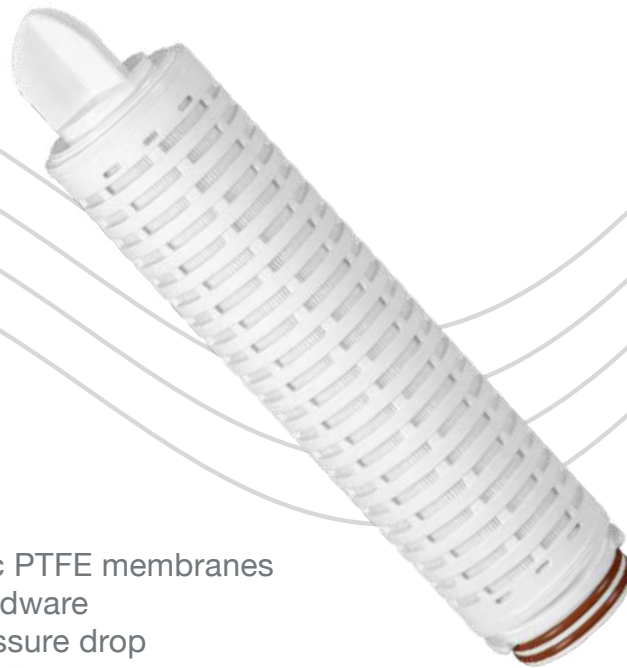
Eg.=> CFPPT0010G050AD0PSS0

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 = DOE	P = Polypro U = SUS Steel	S = Silicone	S = Standard Y = SS reinforcement (Endcap D0, E2, K1, K2, excluded) V = Viton F = E-FKM P = PSU reinforcement (Endcap G1, G2, only)	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 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 ² / 10"

Integrity Test Parameters

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

Material of Constructions

- Membranes:
- Support/Drainage:
- Cage/ Core/ Endcap:
- O-ring:

Inherently hydrophobic PTFE
 Oxidation resistant PP
 Oxidation resistant PP
 Please refer to ordering information

Performance

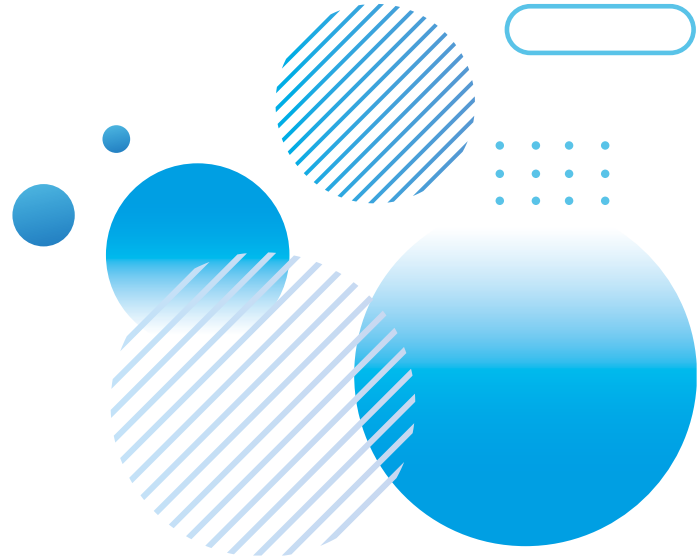
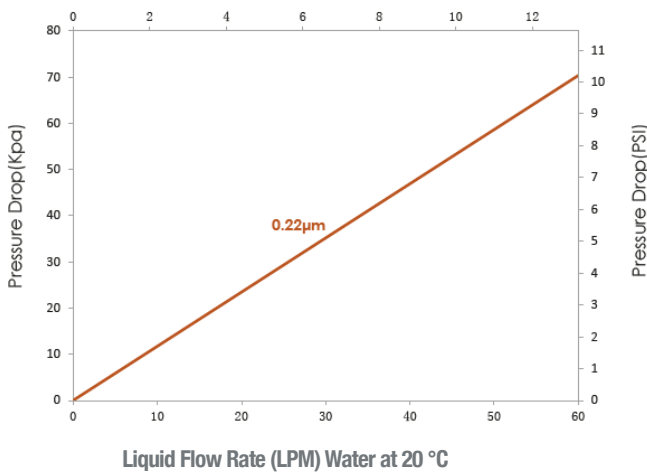
Maximum operating temperature
 Maximum differential pressure

80 °C
 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

Flow Rate CFPPT0020S10 (ster grade / size 10")
 Liquid Flow Rate (GPM) Water at 20 °C
 wetted membrane IPA 60/40



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

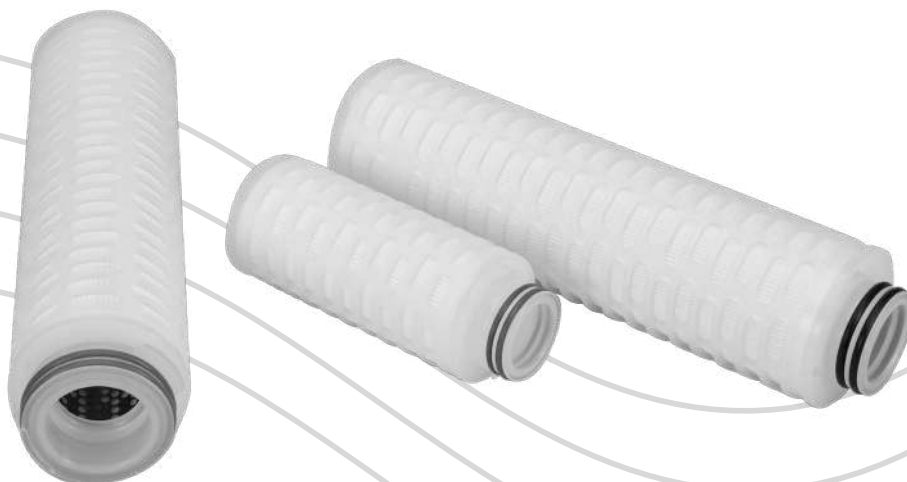
ORDERING INFORMATION

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)
- Water Intrusion (WIT)

≤ 20 ml/min @ 1035 mbar (60/40 IPA/Water)

CFPPT0022U ≤ 0.38 ml/min @ 2500 mbar

CFPPT0022T ≤ 0.75 ml/min @ 2500 mbar

Material of Constructions

- Media
- Support
- Cage/End Cap
- Core
- Adapter

PTFE
 PP/PET
 High temperature resistance PP
 High temperature resistance PP/SS
 PP with insert

Pore Size

Gas
 Liquid

0.01 µm
 0.2 µm

Performance

- Max Operating Temperature
- Max Operating DP

100 °C
 5.2 bar @ 20 °C
 2.4 bar @ 80 °C

Sterilization

- Inline Steam Sterilization
- Maximum Forward Steam Sterilization
- Maximum Reverse Steam Sterilization

135 °C / 30 min, 150 cycles dimension
 1 bar @ 135 °C
 0.3 bar @ 142 °C
 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" 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

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

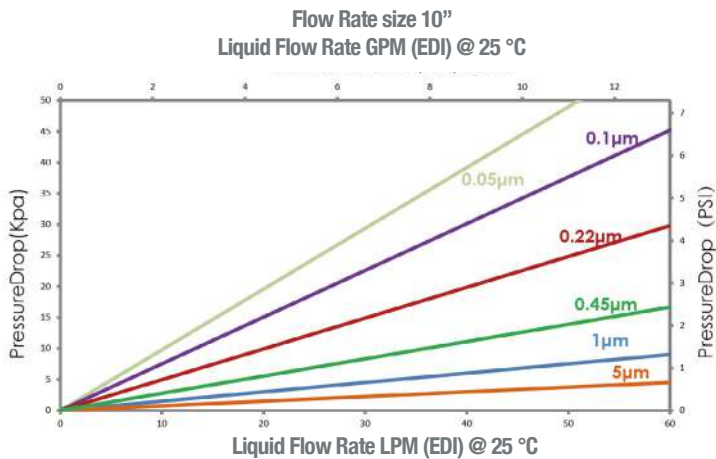
- Pharmaceutical products
- Fine chemicals
- Microelectronics fluids

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 m²
 - H100H = H / 10" / OD:83mm = 1.51 m²
- Premier Filtration Area
 - K100A = K / 10" / OD:69mm = 1.12 m²
 - K100H = K / 10" / OD:83mm = 1.63 m²

Material of Constructions

- Media
 - Hydrophobic PTFE membrane
- Support Netting
 - PFA/PTFE
- Cage/Core/End Cap
 - PFA
- Seal Material
 - E-FKM

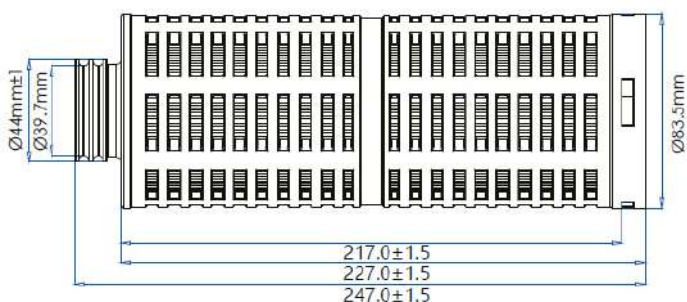
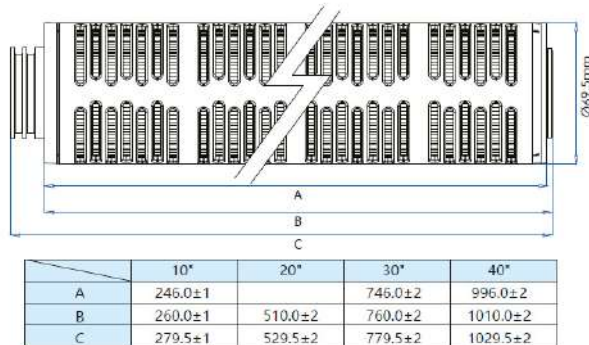
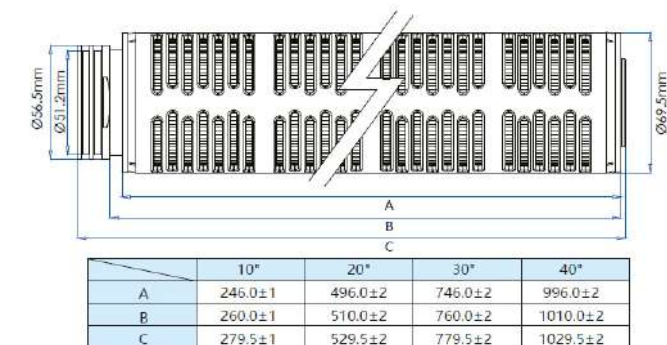


Performance

- 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	0005 = 0.05µm	H = High Chem	10 = 10"	0A = OD:69 mm	H2 = 222/Flat	F = PFA	F = E-FKM	S= Standard	2 = Prewet
		0010 = 0.1µm	K = P High Chem	20 = 20"	0H = OD:83mm (Size: 10, only)	G2 = 226/Flat				3 = No-Prewet
		0020 = 0.20µm		30 = 30"						5 = H.CL Prew
		0045 = 0.45µm		40 = 40"						6 = H.CL No-Prew
		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

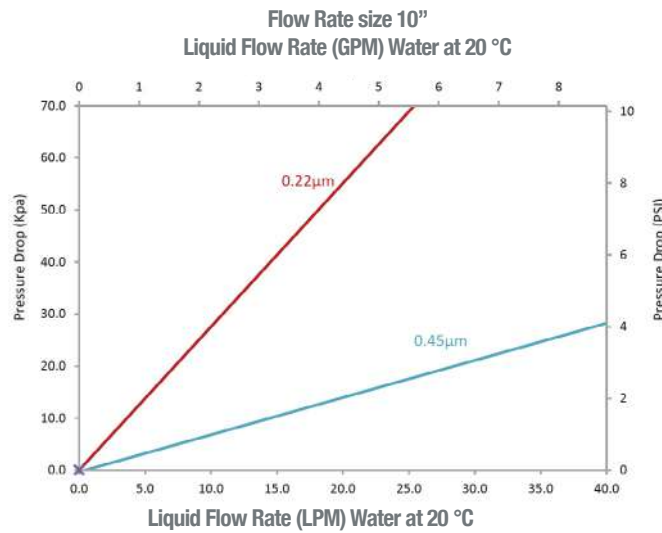
Performance

- 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"	0A = OD:69 mm	D0 = DOE	P = Polypro	S = Silicone	S= Standard (Endcap: D0, only)	0 = Rev.0			
		0022 = 0.22µm		10 = 10"		H1 = 222/Fin					S = SS Steel	E = EPDM	Y = SS reinforced (Endcap: D0, excluded)
		0045 = 0.45µm		20 = 20"		H2 = 222/Flat						B = NBR	P = PSU reinforced (Endcap: G1, G2, only)
		0120 = 1.2µm		30 = 30"		G1 = 226/Fin						V = Viton	
				40 = 40"		G2 = 226/Flat						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

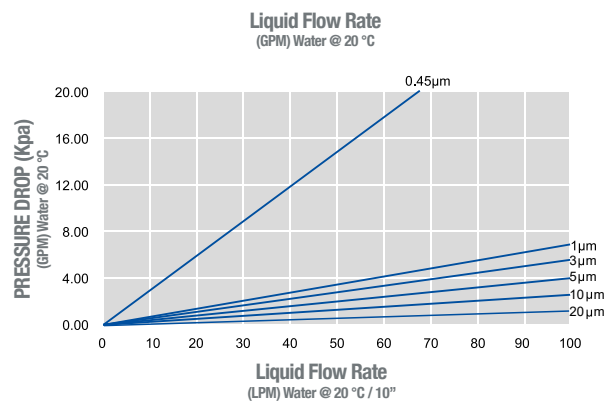
- Low pressure drops and high flow rates
- High filtration efficiency, up to 96%
- Excellent chemical compatibility
- High dirt holding capacity and long service life

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			Y = SS reinforcement (Endcap D0, E2, H1, H2, excluded)
		0500 = 5µm		30 = 30"		H2 = 222/Flat		V = Viton			
		1000 = 10µm		40 = 40"		H5 = 222/Spear Fin		F = E-FKM			P = PSU reinforcement (Endcap G1, G2, only)
		2000 = 20µm		K1 = 222 Ext/Fin							
		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
-------------------------	-----------------

Filtration Area

Ø 69m	0.45 m ² /10" Filter cartridges
-------	--

Extractables

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

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 0030=0.3µm 0050=0.5µm	P = Premier	5 = 5" 10 = 10" 20 = 20" 30 = 30" 40 = 40"	0A = OD:69 mm	D0 = DOE E2 = 213/Flat H1 = 222/Fin H2 = 222/Flat H5 = 222/Spear Fin K1 = 222 Ext/Fin K2 = 222 Ext/Flat G1 = 226/Fin G2 = 226/Flat G2 = 226/Flat	P = PP Core S = SS Core	S = Silicone E = EPDM B = NBR V = FKM F = E-FKM	S = Standard Y = SS reinforcement (Endcap D0, E2, H1, H2, excluded)	0 = Rev.0
									P = PSU reinforcement (Endcap G1, G2, only)	

CFW series PP/Cotton/GF String Wound

CFW series PP/Cotton/GF 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

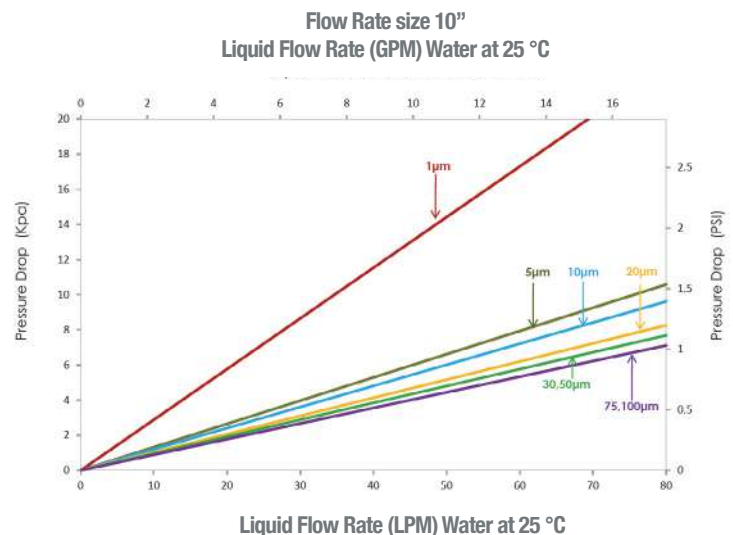
Applications

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

Dimension

Out Diameter
Inner Diameter
Length

63 mm (2.5") , 115 mm (4.5")
28 mm
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
- Inner Core

PP, Bleached Cotton, Glass
Fiber
PP, SS

Performance

- Max. operating temperature
- Max. pressure drop

PP: 80 °C
Cotton: 120 °C
Glass Fiber: 200 °C

2.0 bar @ 25 °C

Eg.=> CFWCW0100D98MD0P0S0

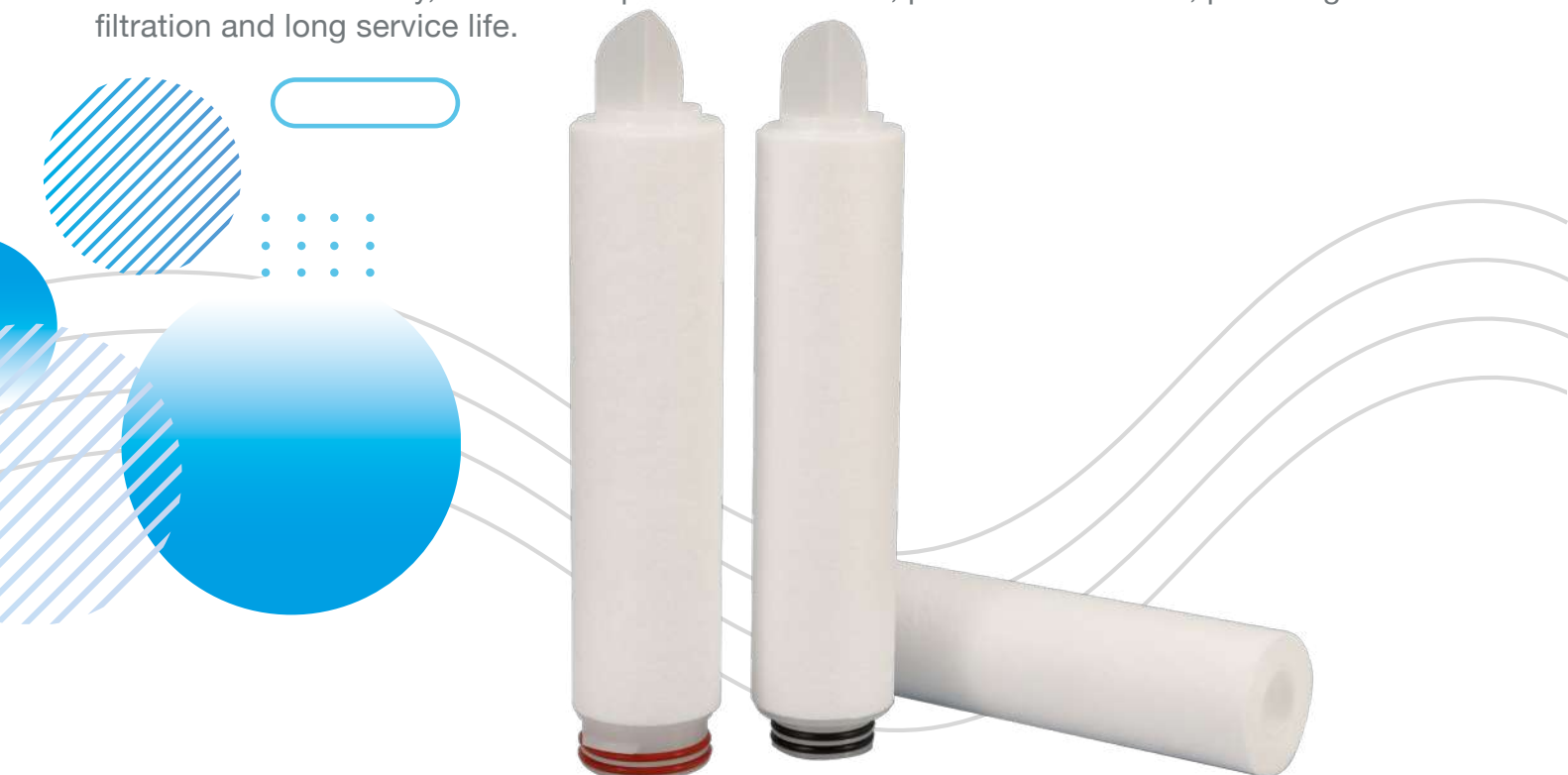
ORDERING INFORMATION										
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CFW = String Wound Cartridge	CW = Cotton S.W.	0010=0.1µm	D = High Dirt	98 = 9.87"	0M = OD:63 mm	F = DOE	P = Polypro	O = No seal Mat	S= 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 pores 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

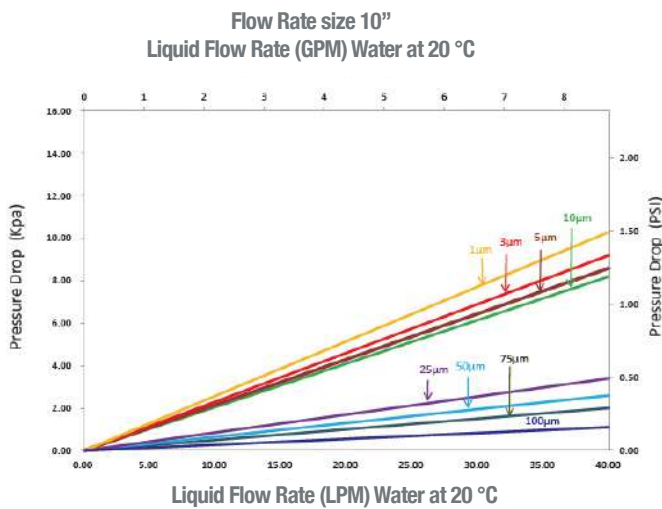
Out Diameter
 Inner Diameter
 Length

63 mm (2.5") , 115 mm (4.5")
 28 mm
 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"							D5 = DOE PE gasket	P = Polypro						
		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) 3 bar(44 psi) @ 90°C (194°F)
Pressure	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 Cartr	PP = Polypro	0010=0.1um	P = Premier	H3=32mm H8=82mm X5=105mm	OF=OD:56mm	4H=AS118 15.3mm	P=PP	E=EPDM	S= Standard	0 = Rev.0
		0022=0.22um		For 4H		8H=AS123 10.5mm		S=Silicone		
		0045=0.45um		X7=107mm	For 8H		K=FKM			
		0100=1.0um		S7=70mm Y9=129mm	For SY	SY=AS116 5mm				
		0300=3.0um		L7=77mm Z6=136mm	For LY	LY=AS116 12mm				
		0500=5.0um								
		1000=10.0um								
		2000=20.0um								
5000=50.0um										

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 Cartr	PS = PES	0004=0.04um	S = Ster Grade	H3=32mm H8=82mm X5=105mm	OF=OD:56mm	4H=AS118 15.3mm	P=PP	E=EPDM	S= Standard	0 = Rev.0
		0010=0.1um		For 4H		8H=AS123 10.5mm		S=Silicone		
		0022=0.22um		X7=107mm	For 8H		K=FKM			
		0045=0.45um		S7=70mm Y9=129mm	For SY	SY=AS116 5mm				
		0065=0.65um		L7=77mm Z6=136mm	For LY	LY=AS116 12mm				
		0120=1.2um								

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 Cartr	PT = PTFE	Application G	G=Gen Purpose S=Ster Grade	H3=32mm H8=82mm X5=105mm	OF=OD:56mm	4H=AS118 15.3mm	P=PP	E=EPDM	S= Standard	0 = Rev.0
		0010=0.1um		For 4H		8H=AS123 10.5mm		S=Silicone		
		0022=0.22um		X7=107mm	For 8H		K=FKM			
		0045=0.45um		S7=70mm Y9=129mm	For SY	SY=AS116 5mm				
		0100=1.0um		L7=77mm Z6=136mm	For LY	LY=AS116 12mm				
		0300=3.0um								
		0500=5.0um								
		1000=10.0um								
		Application S								
		0010=0.1um								
		0022=0.22um								
		0045=0.45um								
		0100=1.0um								

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

Material of Constructions

Media	Carbon impregnated cellulose media PP
Support	PP
Cage/Core/End cap	PP
Sealing	Silicone, EPDM, FKM

Performance

Micro rating	5µm
PH	1-13
Max. Operating Temperature	≤50 °C
Max. Operating Pressure	65 °C
Max. Operating DP	4 bar@20 °C 1 bar@65 °C

Eg.=> CCDCI0500L100AG1PSY0

ORDERING INFORMATION

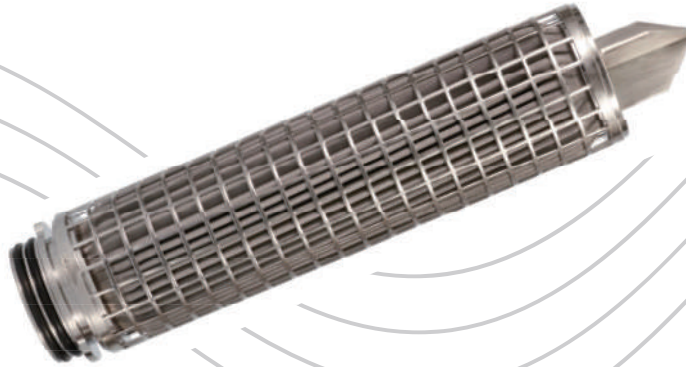
Product Type	Membrane Type	Membrane pore size	Application	Size	Diameter	Endcap	Inner Core	Sealing Material	Connection Support	Revision
CCD = Carbon Cellulose Pleated Filter Cartridges	CI = Carbon impregnated Cellulose	0500 = 5µm	L = Decolorizing	05 = 5" 10 = 10" 20 = 20" 30 = 30" 40 = 40"	OA = OD:69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

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

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

Applications

1. Steam Filtration
2. Oxidizing Liquid filtration
3. Filtration of high viscosity liquids
4. Liquid Decarburization filtration

Dimension

- Outer Diameter 60mm, 65mm, 68mm
- Length: 5", 10", 20", 30", 40"

Material of Constructions

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

Performance

1. Maximum operating temperature 300°C
2. 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 = DOE	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

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

Applications

1. Steam filtration
2. Filtration of corrosive reagents
3. High temperature fluid filtration
4. Liquid Decarburization filtration

Dimension

- Outer Diameter 60mm, 65mm, 68mm
- Length: 5", 10", 20"

Material of Constructions

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

Performance

1. Media SS304/SS316L/Titanium
2. Core/Cage/Endcap 304/316L
3. 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
STK = Titanium Powder Cartridge	SS = S304	0100 = 1µm	G = Gen Purpose	05 = 5"	0G = OD:60mm	D0 = DOE	S = Standard	S = Silicone	S= Standard	0 = Rev.0
	SL = S316L	0300 = 3µm		10 = 10"	0E = OD:65mm	H2 = 222/Flat		E = EPDM		
	TI = Titanium	0500 = 5µm		20 = 20"	0B = OD:68mm	G2 = 226/Flat		B = NBR		
		1000 = 10µm				S1 = Screw		V = Viton		
								F = E-FKM		

HOUSFLOW



HOUSFLOW

CHR Series - Stainless steel filter Housing

GVS stainless steel filter housings are designed for filtration of gas, liquid and steam filtration. The top of the housing is equipped with a Clamp connection for ancillary equipment such as pressure relief valves or pressure gauges. The lowest point of the housings are equipped with pharma valves or vent/drain connections. Filter housings are designed to yield low differential pressure at high flow rates.

Gas and steam series filter housings have been developed for the purification of compressed air, steam and other technical gases in industrial ranges of application. Due to the optimized construction they offer low differential pressure at high flow rates. Numerous different sizes of housings with various connections make it possible to adopt the filter system to exactly the needed requirements.

Liquid series filters are used in the filtration of liquid materials in the pharmaceutical, food and beverage, chemical, microelectronics and other industries. Filter housings are available in many different sizes, offering a wide range of capacity depending on element selection.



Typical Application



Pharmaceutical Industry



Food & Beverage



Chemical Industry

Features and Benefits

- High quality stainless steel design
- Extremely low differential pressure
- Various connection types
- Different structures are suitable for filtration systems with different media such as gas, liquid and steam
- Full traceability to each filter with unique serial number

Material of Constructions

Filter Housing:

Attachment Parts:

Housing Gasket:

316L SS or 304 SS

316L SS or 304 SS

Silicone, PTFE, Viton
(other gaskets on request)

Surface Finish

Inner Surface Finish:

Outer Surface Finish:

Ra < 0.4 μm

Ra < 0.8 μm

Operating Conditions

Maximum operating temperature

Up to 200 °C depending
on filter element selection
and gasket material

Maximum operating pressure

10 bar (some products
are 16 bar)

Connection Types

Union Connection

Ferrule Connection

BSP thread connection

DIN flange

Welded ends

For more informations consult the **HOUSFLOW** catalog

APPENDIX

CARTFLOW DIMENSIONS

Pleated cartridge membrane: PES, PSU, PTFE, Nylon

Endcap

Connection support

Endcap

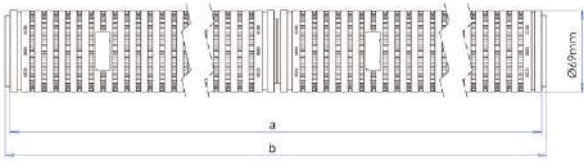
Connection support

DOE

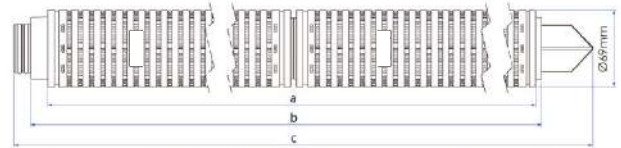
Standard

222/ Spear Fin

SS Reinforced



	5°	10°	20°	30°	40°
a	117.0±1	246.0±1	492.0±2	742.0±2	992.0±2
b	125.0±1	254.0±1	500.0±2	750.0±2	1000.0±2



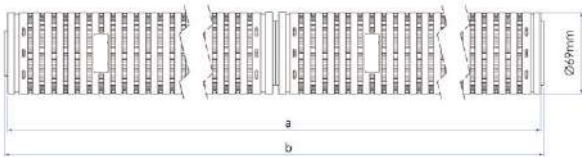
	5°	10°	20°	30°	40°
a	114.0±1	243.0±1	489.0±2	739.0±2	989.0±2
b	135.0±1	264.0±1	510.0±2	760.0±2	1010.0±2
c	196.0±1	325.0±1	571.0±2	821.0±2	1071.0±2

213/ Flat

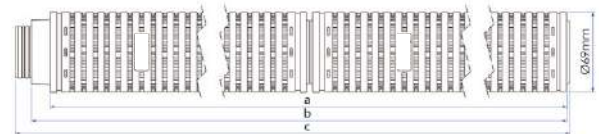
Standard

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



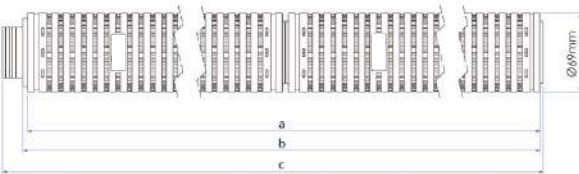
	5°	10°	20°	30°	40°
a	114.0±1	244.0±1	494.0±2	744.0±2	994.0±2
b	130.0±1	260.0±1	510.0±2	760.0±2	1010.0±2
c	146.5±1	276.5±1	526.5±2	776.5±2	1026.5±2

222/ Flat

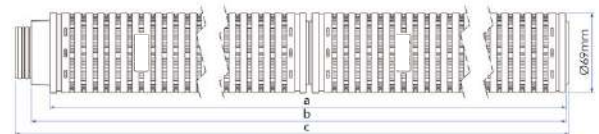
Standard

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	140.0±1	270.0±1	520.0±2	770.0±2	1020.0±2

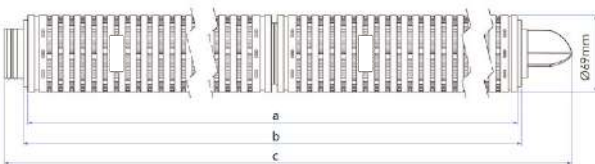


	5°	10°	20°	30°	40°
a	114.0±1	244.0±1	494.0±2	744.0±2	994.0±2
b	130.0±1	260.0±1	510.0±2	760.0±2	1010.0±2
c	146.5±1	276.5±1	526.5±2	776.5±2	1026.5±2

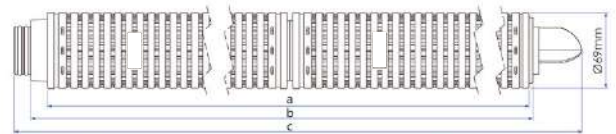
222/ Fin

Standard

222 Extended/ Fin



	5°	10°	20°	30°	40°
a	118.0±1	247.0±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	177.5±1	316.5±1	562.5±2	812.5±2	1062.5±2



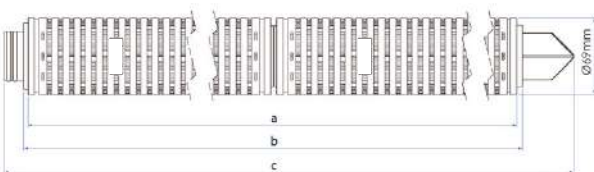
	5°	10°	20°	30°	40°
a	116.0±1	245.0±1	491.0±2	741.0±2	991.0±2
b	135.0±1	264.0±1	510.0±2	760.0±2	1010.0±2
c	194.5±1	323.5±1	569.5±2	819.5±2	1069.5±2

222/ Spear Fin

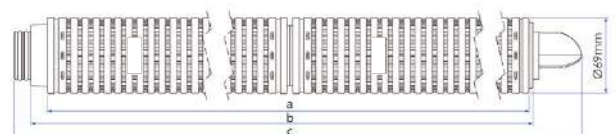
Standard

222 Extended/ Fin

SS Reinforced



	5°	10°	20°	30°	40°
a	116.0±1	245.0±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	317.5±1	563.5±2	813.5±2	1063.5±2



	5°	10°	20°	30°	40°
a	116.0±1	245.0±1	491.0±2	741.0±2	991.0±2
b	135.0±1	264.0±1	510.0±2	760.0±2	1010.0±2
c	194.5±1	323.5±1	569.5±2	819.5±2	1069.5±2

CARTFLOW DIMENSIONS

Endcap

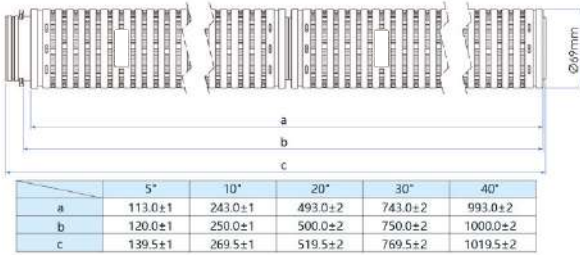
Connection support

Endcap

Connection support

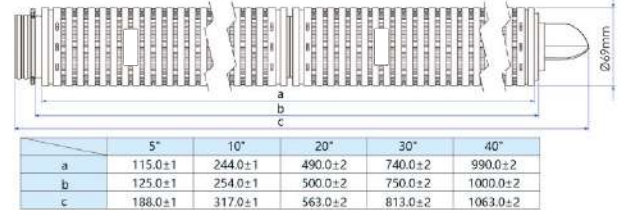
226/ Flat

Standard



226/ Fin

PSU Reinforced

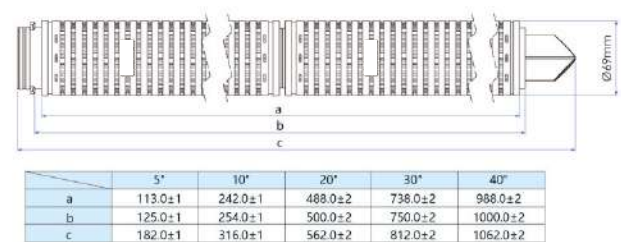
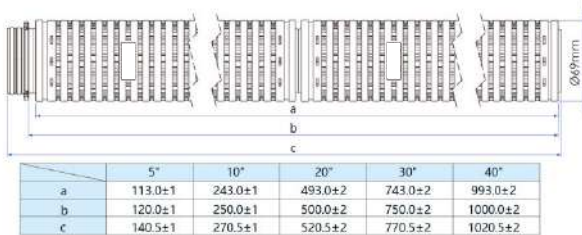


226/ Flat

SS Reinforced

226/ Spear Fin

Standard

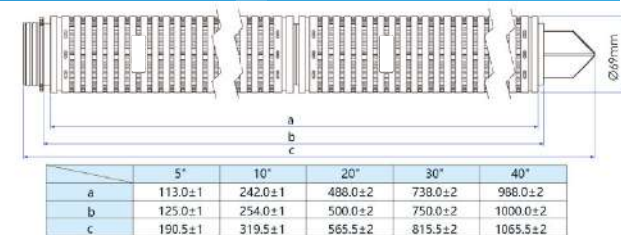
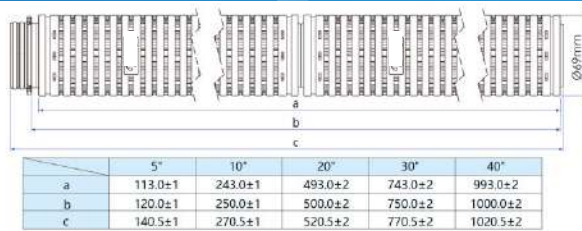


226/ Flat

PSU Reinforced

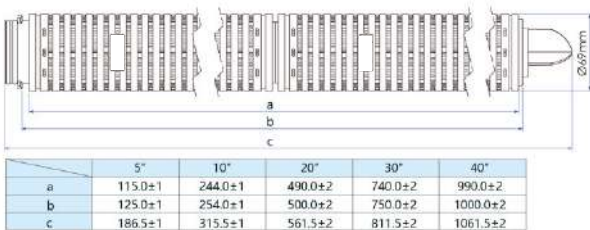
226/ Spear Fin

SS Reinforced



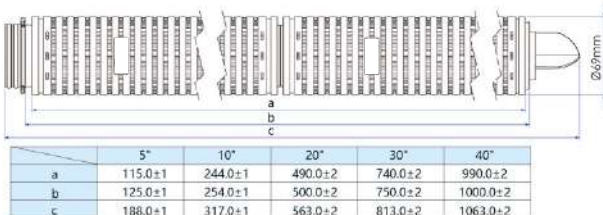
226/ Fin

Standard



226/ Fin

SS Reinforced



CARTFLOW DIMENSIONS

Pleated cartridge media: PP

Endcap

Connection support

Endcap

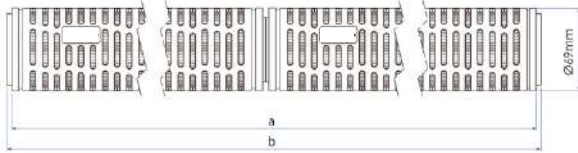
Connection support

DOE

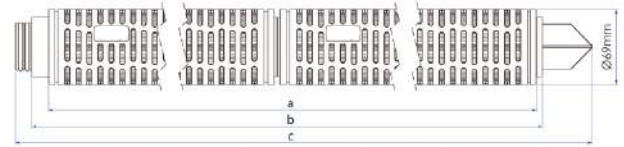
Standard

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



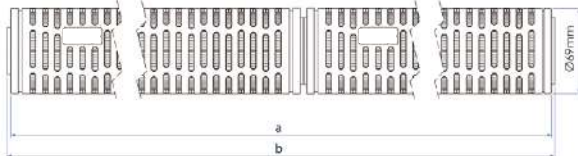
	5°	10°	20°	30°	40°
a	114.0±1	239.0±1	489.0±2	739.0±2	989.0±2
b	135.0±1	260.0±1	510.0±2	760.0±2	1010.0±2
c	196.0±1	321.0±1	571.0±2	821.0±2	1071.0±2

213/ Flat

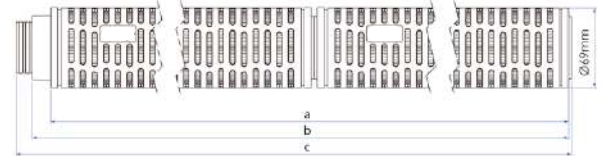
Standard

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



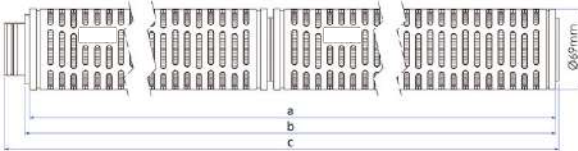
	5°	10°	20°	30°	40°
a	114.0±1	244.0±1	494.0±2	744.0±2	994.0±2
b	130.0±1	260.0±1	510.0±2	760.0±2	1010.0±2
c	146.5±1	276.5±1	526.5±2	776.5±2	1026.5±2

222/ Flat

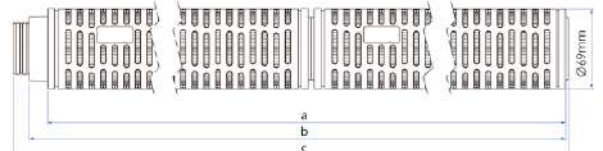
Standard

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



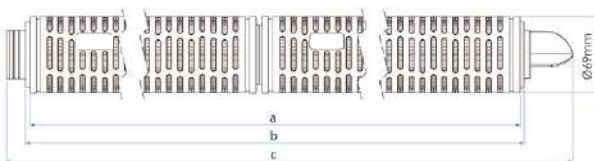
	5°	10°	20°	30°	40°
a	114.0±1	244.0±1	494.0±2	744.0±2	994.0±2
b	130.0±1	260.0±1	510.0±2	760.0±2	1010.0±2
c	146.5±1	276.5±1	526.5±2	776.5±2	1026.5±2

222/ Fin

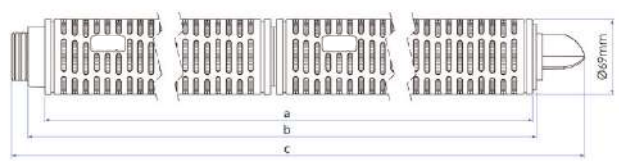
Standard

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



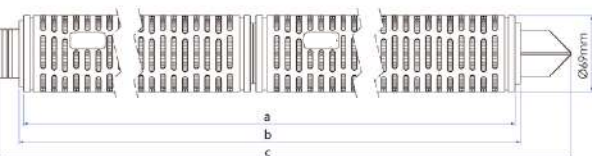
	5°	10°	20°	30°	40°
a	117.0±1	242.0±1	492.0±2	742.0±2	992.0±2
b	135.0±1	260.0±1	510.0±2	760.0±2	1010.0±2
c	194.5±1	319.5±1	569.5±2	819.5±2	1069.5±2

222/ Spear Fin

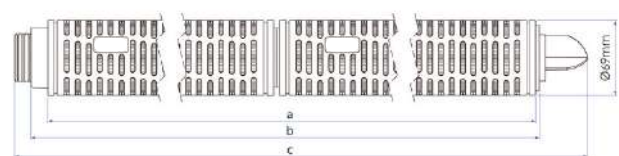
Standard

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

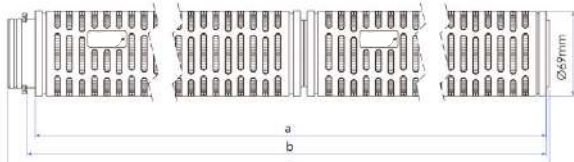
Connection support

Endcap

Connection support

226/ Flat

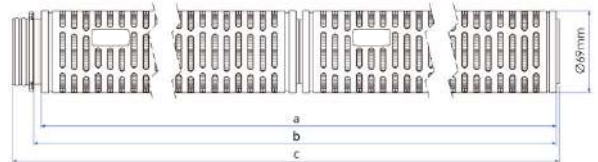
Standard



	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

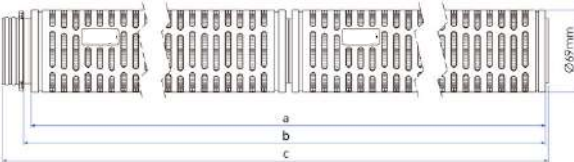
PSU Reinforced



	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

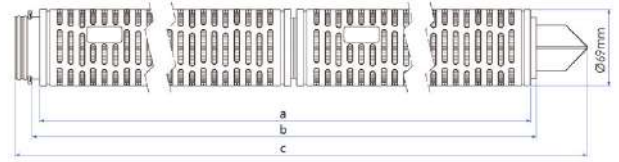
SS Reinforced



	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

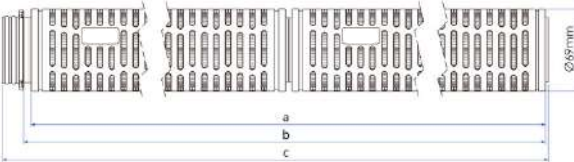
Standard



	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	167.0±1	312.0±1	562.0±2	812.0±2	1062.0±2

226/ Flat

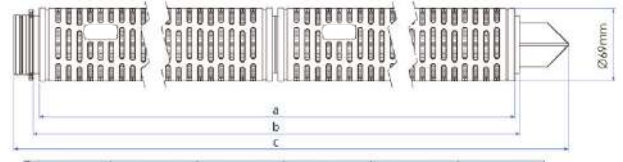
PSU Reinforced



	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

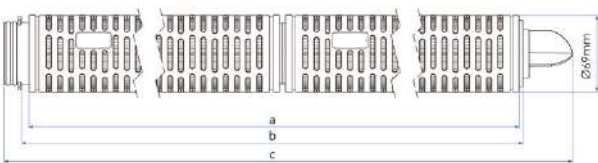
SS Reinforced



	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

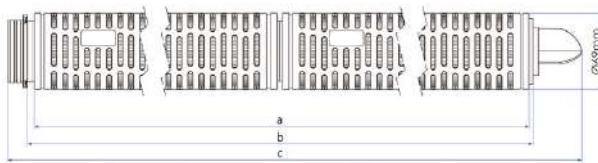
Standard



	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

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

Toxicity

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

Filter Area

- 500 cm²
- 1000 cm²
- 1500 cm²
- 2100 cm²

Fitting Option

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

Construction of Materials

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

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

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

Pore size	Min.Bubble point
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	Application G	G = Gen Purpose	N = Not Sterile	05 = 500 cm ²	4NM = 1/4" NPT-M	NN = None	0 = Bag label
		0010 = 0.1µm	B = Low Bio		10 = 1000cm ²	8NM = 3/8" NPT-M		1 = Housing Label
		0020 = 0.2µm	S = Ster Grade		15 = 1500cm ²	2NM = 1/2" NPT-M		
		0045 = 0.45µm			21 = 2100cm ²	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		
		Application S				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.

Capsule Integrity

- Minimum burst pressure: 123.5 psi (8.5 barg)

Cartridge Integrity Test Specifications

Low Bio

Pore size	0.2 µm
Subbie Point	≥1.4 barg (IPA/ Water)
Water intrusion	≤0.17 ml/min@2500 mbar/2100cm ² , 2°C/22°C

Gen Purpose

Pore size	8ci VY 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

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 cm²
- 1000 cm²
- 1500 cm²
- 2100 cm²

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	Application G	G = Gen Purpose	N = Not Sterile	05 = 500 cm ²	4NM = 1/4" NPT-M	NN = None	0 = Bag label
		0010 = 0.1µm	B = Low Bio		10 = 1000cm ²	8NM = 3/8" NPT-M		1 = Housing Label
		0020 = 0.2µm			15 = 1500cm ²	2NM = 1/2" NPT-M		
		0045 = 0.45µm			21 = 2100cm ²	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		
		Application 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 cm²
- 1000 cm²
- 1500 cm²
- 2100 cm²

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	Application G	G = Gen Purpose	N = Not Sterile	05 = 500 cm ²	4NM = 1/4" NPT-M	NN = None	0 = Bag label
		0030 = 0.3µm	P = Premier		10 = 1000cm ²	8NM = 3/8" NPT-M		1 = Housing Label
		0060 = 0.6µm			15 = 1500cm ²	2NM = 1/2" NPT-M		
		0100 = 1.0µm			21 = 2100cm ²	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		
		Application P				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

CIK series - Asymmetrical PES 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 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

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 cm²
- 5" = 2500 cm²
- 10" = 6000 cm²
- 20" = 12000 cm²
- 30" = 18000 cm²
- 40" = 24000 cm²

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.



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 µm
6ci VY 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 ²
• 5" =	2700 cm ²
• 10" =	6300 cm ²
• 20" =	12600 cm ²
• 30" =	18900 cm ²
• 40" =	25200 cm ²

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		

CIK series - Polypropylene media

General Application Capsule Filters

CIKPP 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 ²
• 5"	=	2650 cm ²
• 10"	=	5500 cm ²
• 20"	=	11000 cm ²
• 30"	=	16500 cm ²
• 40"	=	22000 cm ²

Capsule Integrity

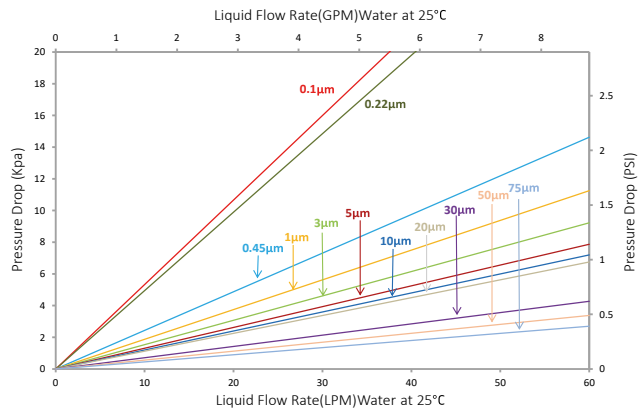
- Minimum burst pressure: 123.5psi (8.5 barg)
Food Safety Compliance

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	Application G	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
		Application P			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						

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.



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.

Filtration Area

CXKPT (PTFE), CXKPS (PES)

- 2.5" : 600 cm²

CXKNY (NYLON)

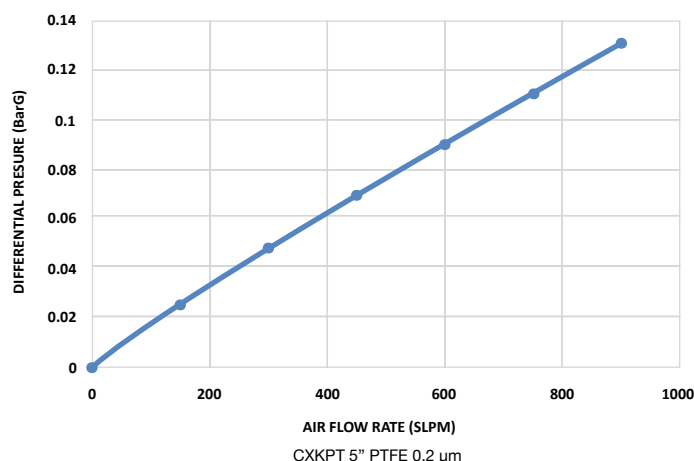
- 2.5" : 700 cm²
- 5" : 2100 cm²
- 5" : 1700 cm²

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



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 PT = PES NY = NYLON	0005 = 0.05 μm (PT only) 0010 = 0.1 μm 0020 = 0.2 μm	X = Steaming in place	N = Not Sterile	SS = 2.5" LL = 5"	5TC = 1.5" TC	SS = St/St HH = HB/HB SH = St/HB HS = HB/St	0 = Bag label

CLL series

In-line filter PES membrane

Capsule Filter

TIn line filter PES 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 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.



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 for biological safety per USP Class VI -121C° for plastics.

Filter Area

- 0.6cm²/10" c

Fitting Option

- 1.5" TC

Vent/Drain Option

- Stepped hose barb

Capsule Integrity

- Minimum burst pressure: 123.5psi (8.5barg)

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

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"			



CLL series

In-line filter

**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

Toxicity

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

Filter Area

- 10": 64000cm²

Fitting Option

- 1.5" TC

Vent/Drain Option

- hose barb

Capsule Integrity

- Minimum burst pressure: 123.5psi (8.5barg)

Typical Applications

- Sterile air feed
- Chemicals
- Pharmaceuticals
- Solvent

Construction of Materials

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

Sanitization /Sterilization

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	0.2um
Bubble Point	≥ 1.2 barg(IPA/Water)
Water Intrusion	≤ 0.37ml/min @2500mbar/10",22°C
Diffusive Flow	≤10ml/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 μm	B =Low Bio	N = Not Sterile	SS = 2.5" LL = 5" TE = 10" TW = 20" TH = 30" FO = 40"	5TC = 1.5" TC	HH = HB/HB	0 = Bag label 1 = Housing label



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 polyethersulfone (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 cm², 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 10⁻⁶, 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

FibraFlow Tangential Flow Filtration



GVS provides comprehensive solutions on tangential flow filtration

TFFS PS01000301080N

- 1 2 3 4 5 6

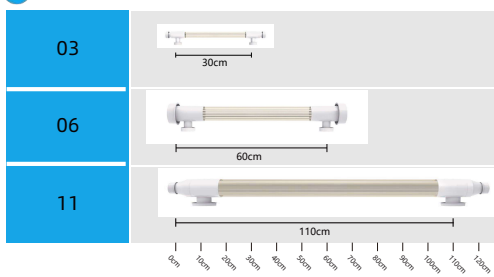
1 Material of hollow fiber membrane

PS	PES(Modified polyethersulfone)
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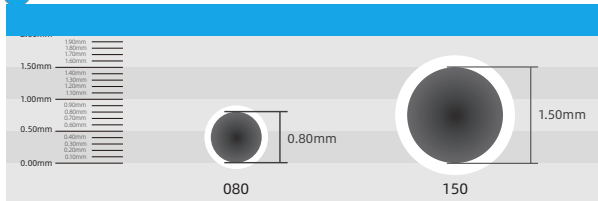
2 MWCO

010M	0.1µm
020M	0.2µm
045M	0.45µm

3 Passageway length



5 Membrane diameter



6 Specification

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

4 Housing specifications

Code	Scale	Inner diameter (mm)	Membrane area (m ²)	Passageway length (cm)	Housing length (cm)	Interface specifications Inlet/Return Port Through Port
01	small scale	3	0.00067	27	32.2	4mm male luer head
			0.0014	56	62.2	4mm female luer head
02	small scale	9	0.017	27	31.8	TC25(1/2") TC25(1/2")
			0.035	56	61.8	
03	small scale	19	0.10	27	33.3	TC25(1/2") TC25(1/2")
			0.20	56	63.3	
04	middle scale	32	0.24	27	31.2	TC50(1-1/2") TC25(1/2")
			0.50	56	61.2	
05	middle scale	51	0.53	27	35.5	TC50(1-1/2") TC25(1/2")
			1.1	56	65.5	
06	production	76	2.7	53	67.9	TC64(2") TC50(1-1/2")
			5.1	101	117.9	
07	production	108	5.0	50	70.9	TC64(2") TC50(1-1/2")
			10	101	121.1	



Hollow Fiber Filter



Common 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.

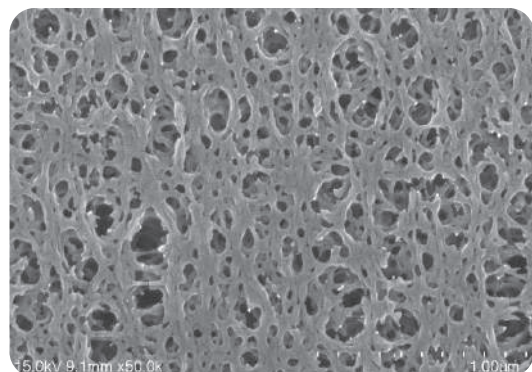
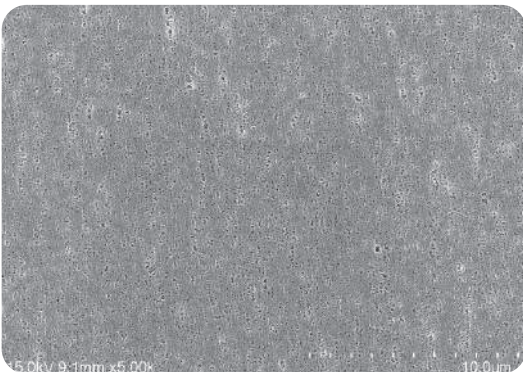
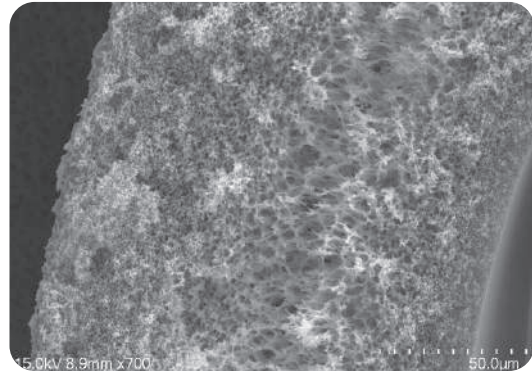
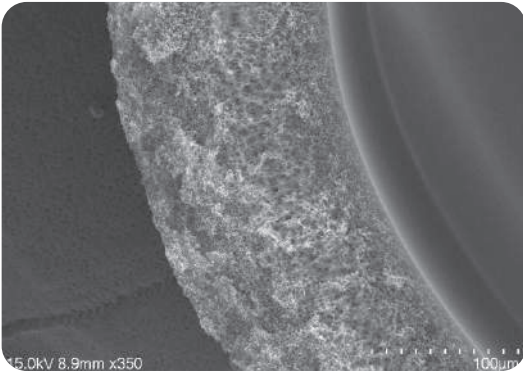
The technical parameters of this product meet the following regulatory requirements:

- 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.

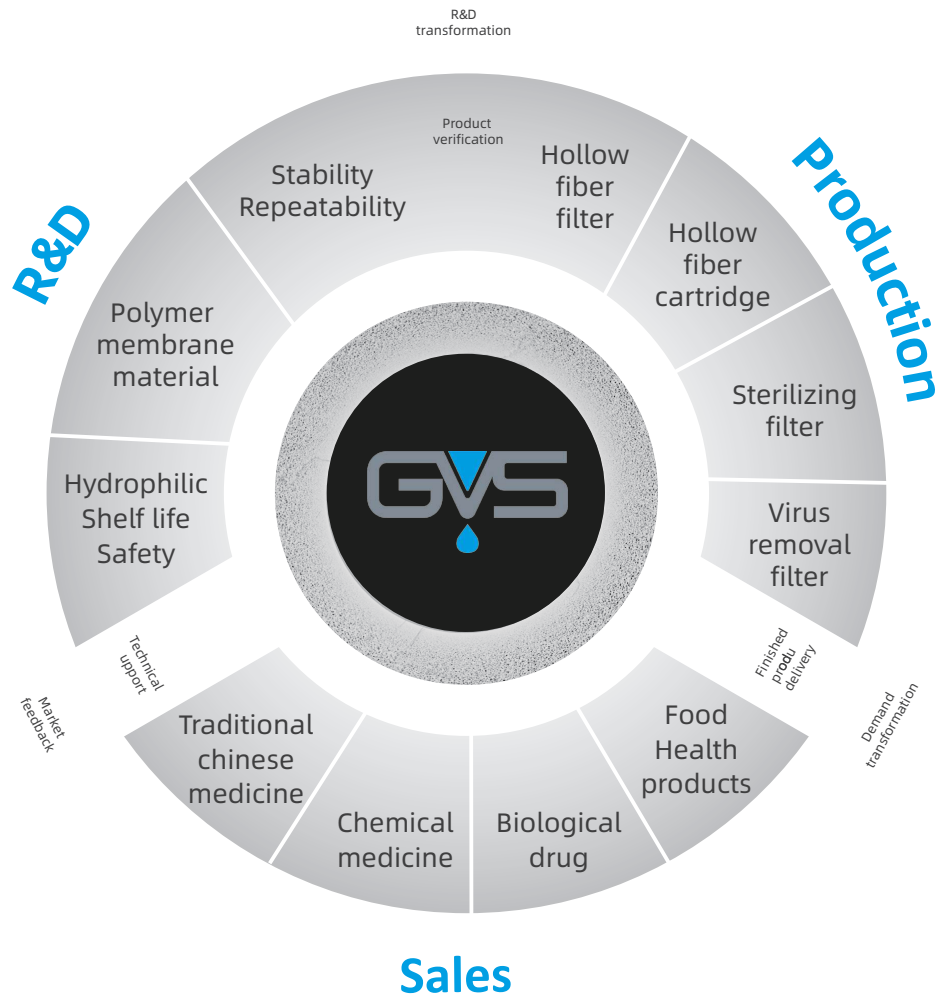
Hollow Fiber Membrane

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(PES) 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

Ultra H2O Terminal Ultrafilter



GVS Terminal Ultrafilter

UFSGPES15KD4302S

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.

Product Advantages:

- 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 CO₂ 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 Information

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

Parameters

Membrane area	0.43m ²
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



CassetteFlow Microfiltration Ultrafiltration Cassettes



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.



0.11m²



0.5m²



1.3m²



2.5m²

Material information

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

Parameter information

Membrane pore size	ultrafiltration (kd)	microfiltration (µm)
		1/3/5/8/10/30/50/100/300/500/750/1000
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 ²	R&D	200mL-2L	Adapt to stainless steel holder (0.1m ²)
LM	0.5m ²	pilot scale test	500mL-10L	Adapt to stainless steel holder (0.5-2.5m ²)
	1.3m ²	Pilot scale test, production	1000mL-50L	
	2.5m ²	Pilot scale test, production	50L more than 50L	

Order information

Microfiltration cassettes	Pore size	0.11m ² filter area	0.5m ² filter area	1.3m ² filter area	2.5 m ² filter area
	0.1μm	CSTPSUGG010M0011	CSTPSUGG010M0050	CSTPSUGG010M0130	CSTPSUGG010M0250
	0.22μm	CSTPSUGG022M0011	CSTPSUGG022M0050	CSTPSUGG022M0130	CSTPSUGG022M0250
	0.45μm	CSTPSUGG045M0011	CSTPSUGG045M0050	CSTPSUGG045M0130	CSTPSUGG045M0250
Ultrafiltration cassettes	Cut off	0.11m ² filter area	0.5m ² filter area	1.3m ² filter area	2.5 m ² 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	PN	Inspection style	Bottle/Packaging size
	MTWGNCGN220G	Glass bottle large volume injection	18 sets/box, 72 sets/carton
	MTWGNCGN330G		
	MTWGNYGA220G	Glass bottle large capacity antibiotic injection	18 sets/box, 72 sets/carton
	MTWGNYGA330G		
	MTWGNYGA220G	Ampoule injection	18 sets/box, 72 sets/carton
	MTWGNYGA330G		
	MTWGNYAA220G	Ampoule antibiotic injection	18 sets/box, 72 sets/carton
	MTWGNYAA330G		
	MTWGNCVN220G	Vial bottle soluble power	18 sets/box, 72 sets/carton
	MTWGNCVN330G		
	MTWGNYVA220G	Vial bottle soluble antibiotic power	18 sets/box, 72 sets/carton
	MTWGNYVA330G		
	MTWGNCSN220G	Soft bag large volume injection	18 sets/box, 72 sets/carton
	MTWGNCSN330G		
	MTWGPPIN220G	Insoluble liquid	18 sets/box, 72 sets/carton
	MTWGPPIN330G		
	MTWGNYPN220G	Powder that needs to be dissolved and diluted	18 sets/box, 72 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 elasticity and tension Durable, wear and pressure resistant, can ensure the maximum amount of filtra 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-steriliza on treatment me
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	Bo om material	ABS
Cup volume	100ml	Filter/needle holder material	ABS
Filter membrane material	MCE/Nylon/PP 0.45 μ m	Clips/needle cover/caps material	PP
Filter material	PFTE diameter 25mm, 0.45 μ m	Caps materials	silicone

STERILITY TEST PUMP

MTWGCP08

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



STERILITY TEST PUMP

MTWGCP06

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/50H
Power:	240W
Peristaltic pump speed:	20~300rpm
Runner Quantity:	3pc
Height (including bottle rack):	39cm
Dimensions:	32*28*18.1cm
Weight	16Kg



STERILITY TEST PUMP

MTWGCP03

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



STERILITY TEST PUMP

MTWGCP01

FEATURES

- Mini-size design reduces occupying space of super-clean control console and air lowinterference;
- 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



NovaBio 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%	ASTM D1003
	Transmittance	31%	ASTM D1003
	Transmissivity	88%	ASTM D882
	Minimum tolerable temperature	Below -40 °C	ASTM D1790
	Density	0.96 g/cm ³	ASTM D792
Mechanical properties	Tensile strength	17 MPa	ASTM D882
	Elongation at break	800%	ASTM D882
	Elastic modulus	94MPa	ASTM D882
	Puncture resistance	42N	ASTM F1306-21
	Right-angled tearing strength	21N	ASTM D1004-21
	Rubbing resistance (23±2° C, 49% RH, rubbed 270 times)	0 hole	ASTM F392/F392M-2011
	Oxygen permeation after 270 rubs (23±2° C, 0% RH, rubbed 270 times)	3.24 cm ³ /(m ² ·day·1bar)	GB/T1038-2000
Barrier properties	Water vapor transmission rate 1.58g	1.58g/ (m ² ·day) (23 °C ,100%RH)	ASTM F1249
	Oxygen permeability	3.40 cm ³ /(m ² ·day·0.1MPa)	ASTM D3985
	Carbon dioxide permeability	8.25 cm ³ /(m ² ·day·0.1MPa)	ASTM F2476
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			

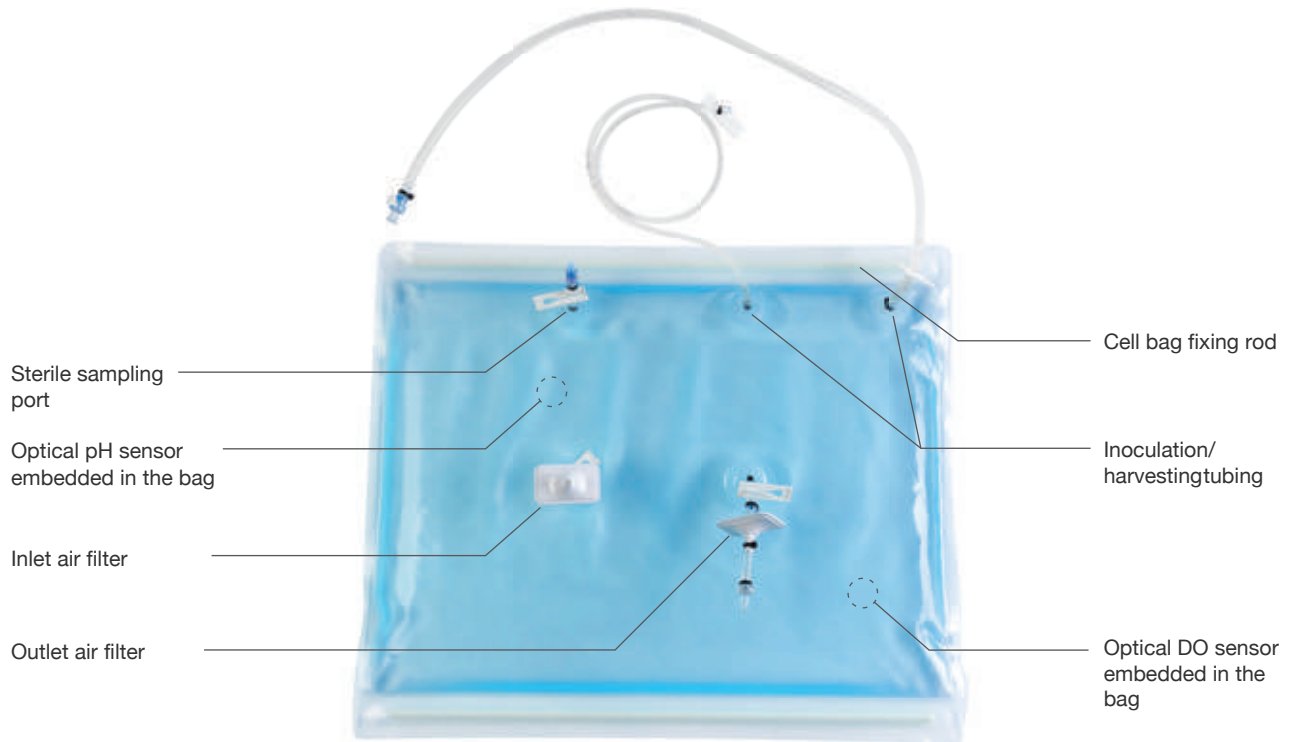
FLCB33 multilayer co-extruded film, LLDPE liquid contact layer

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 ³	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	
Right-angled tearing strength	36N	ASTM D1004-21	
Barrier properties	Water vapor transmission rate (23±0.5°C, 100%RH)	0.442 g/(m ² ·day)	ASTM F1249-20
	Oxygen permeability (23°C, 50±5%RH)	1.57 cm ³ /(m ² ·day·bar)	ASTM D1434-82(2015) ^{e1}
	Carbon dioxide permeability (23°C, 50±5%RH)	1.70 cm ³ /(m ² ·day·bar)	ASTM D1434-82(2015) ^{e1}
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 ³	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 ² ·day)	ASTM F1249
	Oxygen permeability	< 0.05 cm ³ /(m ² ·day·bar)	ASTM D3985
	Carbon dioxide permeability	< 0.2 cm ³ /(m ² ·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:



Schematic diagram of standard cell bag

- 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.

Operational Volume and Hardware Compatibility of Cell Culture Bag

Bag volume	Min. to max. culture volume	Compatible system	Corresponding tray
2 L	300 ml-1 L		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	WB 50	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

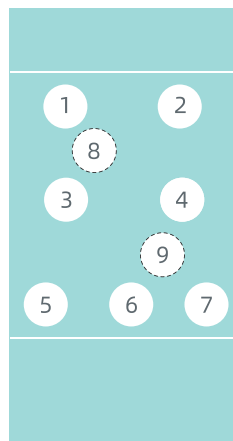
* The minimum culture volume for 2 L pH & DO & perfusion cell bag is 400 ml

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	



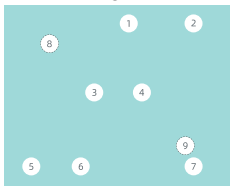
* All connected by non-adjustable straight connectors

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

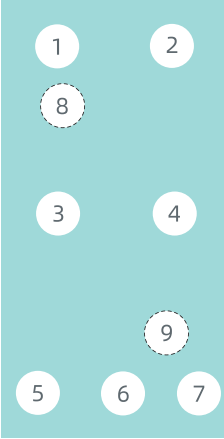
Volume	Version	Product code	Configuration
10 L	Basic cell bag	BIOBGWBAP 010LC101	1.2 NA
			3.4 Air filter
			5. C-Flex 1/4 id *7/16 od*100 cm, female MPC
	pH & DO cell bag	BIOBGWBAP 010LC201	6. C-Flex 1/8 id *1/4 od*100 cm, female Luer
			7. Silicone 3/16 id*3/8 od*5 cm, needleless sampling
			8.9 NA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

* All connected by non-adjustable straight connectors

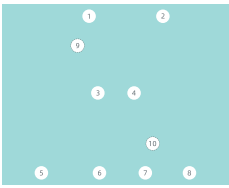
Volume	Version	Product code	Configuration			
20 L	Basic cell bag	BIOBGWBAP 020LC101	1.2	NA		
			3.4	Air filter		
			5.	C-Flex 1/4 id *7/16 od*100 cm, female MPC	7.	Silicone 3/16 id*3/8 od*5 cm, needleless sampling
			6.	NA	8.9	NA
	pH & DO cell bag	BIOBGWBAP 020LC201	1.	NA	6.	Silicone 3/16 id *3/8 od*5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



* All connected by non-adjustable straight connectors

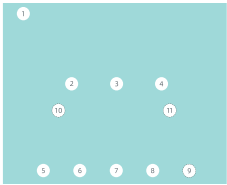
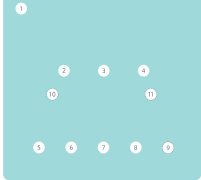
Volume	Version	Product code	Configuration			
22 L 	Basic cell bag	BIOBGWBAP 022LC101	1.2 3.4 5. 6.	NA Air filter C-Flex 1/4 id *7/16 od*100 cm, female MPC C-Flex 1/8 id *1/4 od*100 cm, female Luer	7. 8.9	Silicone 3/16 id*3/8 od*5 cm, needleless sampling NA
	pH & DO cell bag	BIOBGWBAP 022LC201	1. 2. 3.4 5.	C-Flex 3/8 id *5/8 od*100 cm, plug NA Air filter Silicone 3/8 id *5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag	6. 7. 8.9	Silicone 3/16 id *3/8 od*5 cm, needleless sampling C-Flex 1/8 id*1/4 od*100 cm, female Luer C-Flex 1/8 id*1/4 od*100 cm, female Luer pH, DO sensor
	Perfusion cell bag	BIOBGWBAP 022LC303	1. 2. 3.4	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 C-Flex 3/8 id*5/8 od*100 cm, plug Air filter	5. 6. 7. 8.9	Silicone 3/8 id*5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag Silicone 3/16 id*3/8 od*5 cm, needleless sampling 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
	pH & DO & Perfusion cell bag	BIOBGWBAP 022LC404	1. 2. 3.4	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 C-Flex 3/8 id*5/8 od*100 cm, plug Air filter	5. 6. 7. 8.9	Silicone 3/8 id*5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag Silicone 3/16 id*3/8 od*5 cm, needleless sampling 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 pH, DO sensor

* All connected by non-adjustable straight connectors

Volume	Version	Product code	Configuration		
50 L 	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		
	BIOBGWBAP 050LS304	3.4 Air filter			
		5. Silicone 3/8 id*5/8 od*100 cm & C-Flex*60 cm, plug, extended tube inside the bag	9.10 NA		
pH & DO & Perfusion cell bag			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			
		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		
100 L	pH & DO cell bag	BIOBGWBAP 100LC201	5.	Silicone 3/8 id* 5/8 od* 150 cm, plug, extendedtube inside the bag	7.	Silicone 1/4 id* 7/16 od* 5 cm needless 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	Basic cell bag	BIOBGWBAP 200LC101	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, extendedtube inside the bag	7.	Silicone 1/4 id* 7/16 od* 5 cm needless 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	NA
200 L	pH & DO cell bag	BIOBGWBAP 200LC201	6.	Silicone 1/8 id* 1/4 od* 150 cm & C-Flex *50 cm, female Luer and plug	9.	Silicone 1/8 id* 1/4 od* 150 cm & C-Flex *50 cm, plug
			10.11	pH,DO sensor		



For antibodies and proteins

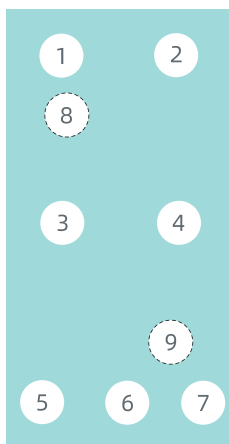
FLCB33 multilayer co-extruded film, LLDPE liquid contact layer, high strength & transparency

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

* All connected by non-adjustable straight connectors

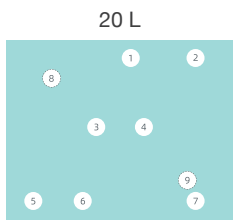
* The minimum culture volume for 2 L pH & DO & perfusion cell bag is 400 mL

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



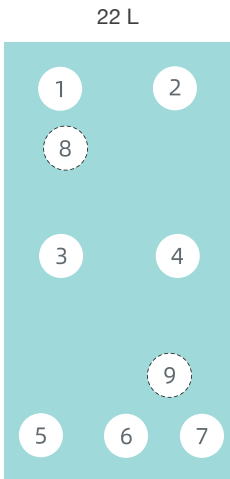
* If connected by non-adjustable straight connectors

Volume	Version	Product code	Configuration			
20 L	Basic cell bag	BIOBGWBAP 020LC102	1.2	NA		
			3.4	Air filter	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	8.9	NA
20 L	pH & DO cell bag	BIOBGWBAP 020LC202	1.	NA	6.	Silicone 3/16 id *3/8 od*5 cm needleless sampling
			2.	C-Flex 3/8 id *5/8 od*100 cm plug	7.	C-Flex 1/8 id*1/4 od*100 cm, female Luer and plug
			3.4	Air filter		C-Flex 1/8 id*1/4 od*100 cm, female Luer and plug
20 L	Perfusion cell bag	BIOBGWBAP 020LC305	5.	Silicone 3/8 id *5/8 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag	8.9	pH, DO senso
			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 3/8 id*5/8 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag
			2.	C-Flex 3/8 id*5/8 od*100 cm plug	6.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
20 L	pH & DO & Perfusion cell bag	BIOBGWBAP 020LC405	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
			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 3/8 id*5/8 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag
			2.	C-Flex 3/8 id*5/8 od*100 cm, plug	6.	Silicone 3/16 id*3/8 od*5 cm, needleless sampling
20 L	pH & DO & Perfusion cell bag	BIOBGWBAP 020LC405	3.4	Air fil	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
			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 3/8 id*5/8 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag
			2.	C-Flex 3/8 id*5/8 od*100 cm, plug	6.	Silicone 3/16 id*3/8 od*5 cm, needleless sampling
20 L	pH & DO & Perfusion cell bag	BIOBGWBAP 020LC405	3.4	Air fil	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
			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 3/8 id*5/8 od*100cm & C-Flex*60 cm, plug, extended tube inside the bag
			2.	C-Flex 3/8 id*5/8 od*100 cm, plug	6.	Silicone 3/16 id*3/8 od*5 cm, needleless sampling

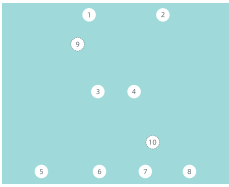


* If connected by non-adjustable straight connectors

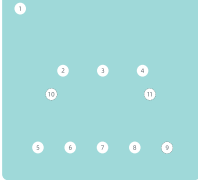
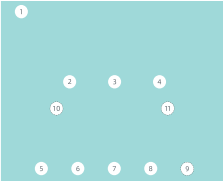
Volume	Version	Product code	Configuration			
22 L	Basic cell bag	BIOBGWBAP 022LC102	1.2	NA		
			3.4	Air filter	7.	
			5.	C-Flex 1/4 id *7/16 od*100 cm female MPC	7.	Silicone 3/16 id*3/8 od*5 cm needleless sampling
			6.	C-Flex 1/8 id *1/4 od*100 cm female Luer and plug	8.9	NA
pH & DO cell bag	BIOBGWBAP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



* If 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 8. NA
		BIOBGWBAP 050LS102	6. C-Flex 1/4 id *7/16 od*100 cm female Luer and plug	9.10 NA
	pH & DO cell bag	BIOBGWBAP 050LC202	1.8 C-Flex 3/8 id *5/8 od*100 cm plug 2. NA 3.4 Air filter	7. C-Flex 1/8 id*1/4 od*100 cm female Luer and plug
		BIOBGWBAP 050LS202	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	C-Flex 1/8 id*1/4 od*100 cm, female Luer and plug 9.10 pH, DO sensor
		BIOBGWBAP 050LC305	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	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
	Perfusion cell bag	BIOBGWBAP 050LS305	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	Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer and plug 9.10 NA
		BIOBGWBAP 050LC405	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	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 & Perfusion cell bag	BIOBGWBAP 050LS405	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	Silicone 1/8 id*1/4 od*100 cm & C-Flex*60 cm, female Luer and plug 9.10 NA

* II connected by non-reducing straight connectors

Volume	Version	Product code	Configuration
100 L 	Basic cell bag	BIOBGWBAP 100LC102	<ol style="list-style-type: none"> 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 needless sampling & C-Flex *50 cm, plug, extendedtube 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 needless sampling 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 NA
	pH & DO cell bag	BIOBGWBAP 100LC202	<ol style="list-style-type: none"> 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 needless sampling & C-Flex *50 cm, plug, extendedtube inside the bag 6. Silicone 1/8 id* 1/4 od* 150cm & C-Flex *50 cm, female Luer and plug 7. Silicone 1/4 id* 7/16 od* 5 cm needless sampling 8. C-Flex 1/4 id* 7/16 od* 200 cm plug 9. Silicone 1/8 id* 1/4 od* 150 &C-Flex *50 cm, plug 10.11 pH,DO sensor
200 L 	Basic cell bag	BIOBGWBAP 200LC102	<ol style="list-style-type: none"> 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 needless sampling & C-Flex *50 cm, plug, extendedtube 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 needless 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 10.11 NA
	pH & DO cell bag	BIOBWBAP 200LC202	<ol style="list-style-type: none"> 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 needless sampling & C-Flex *50 cm, plug, extendedtube inside the bag 6. Silicone 1/8 id* 1/4 od* 150cm & C-Flex *50 cm, female Luer and plug 7. Silicone 1/4 id* 7/16 od* 5 cm needless sampling 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

For novel therapies

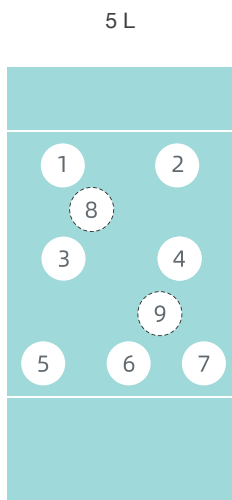
FL140C multilayer co-extruded film, EVA liquid contact layer, soft membrane

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
			7. Silicone 3/16 id*3/8 od*5 cm needleless sampling
			8.9 NA
2 L	pH & DO cell therapy bag	BIOBGWBCT 002LC201	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
			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
			8.9 pH, DO senso
2 L	Perfusion cell therapy bag	BIOBGWBCT 002LC303	1. Y-connector (attached to perfusion filter) PVC 1/8 id*3/16 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & PVC 1/8 id *3/16 od *60 cm, female Luer and plug
			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
			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
			7. NA
			8.9 NA
2 L	pH & DO & Perfusion cell therapy bag	BIOBGWBCT 002LC403	1. Y-connector (attached to perfusion filter) PVC 1/8 id*3/16 od*6 cm, needleless sampling Silicone 1/8 id*1/4 od*100 cm & PVC 1/8 id *3/16 od *60 cm, female Luer and plug
			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
			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
			8.9 pH, DO senso

* Il connected by non-adjustable straight connectors

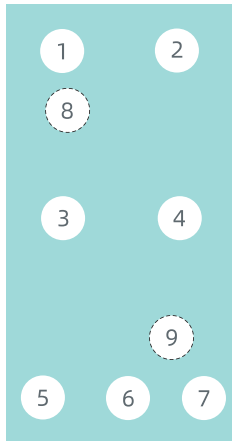
* The minimum culture volume for 2 L pH & DO & perfusion cell bag is 400 ml

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



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



* II connected by non-adjustable straight connectors

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	<ol style="list-style-type: none"> 1. C-Flex 1/4 id*7/16 od*100 cm, female MPC 2. C-Flex 1/8 id*1/4 od*100 cm, female Luer 3. C-Flex 1/4 id*7/16 od*100 cm, male MPC 4. Silicone 3/16 id*3/8 od*5 cm, needleless sampling
2 L	Mixing bag	BIOBGWBMR 002LC101	<ol style="list-style-type: none"> 1. C-Flex 1/4 id*7/16 od*100 cm, female MPC 2. C-Flex 1/8 id*1/4 od*100 cm, female Luer 3. C-Flex 1/4 id*7/16 od*100 cm, male MPC 4. Silicone 3/16 id*3/8 od*5 cm, needleless sampling
10 L	Mixing bag	BIOBGWBMR 010LC101	<ol style="list-style-type: none"> 1.2 C-Flex 1/4 id*7/16 od*100 cm, female MPC 3. C-Flex 1/4 id*7/16 od*100 cm, male MPC 4. C-Flex 1/8 id*1/4 od*100 cm, female Luer 5. Silicone 3/16 id*3/8 od*5 cm, needleless sampling

* All connected by non-adjustable straight connectors

Volume	Version	Product code	Configuration
20 L	Mixing bag	BIOBGWBMR 020LC101	<ol style="list-style-type: none"> 1.2 C-Flex 1/4 id*7/16 od*100 cm, female MPC 3. C-Flex 1/4 id*7/16 od*100 cm, male MPC 4. C-Flex 1/8 id*1/4 od*100 cm, female Luer 5. Silicone 3/16 id*3/8 od*5 cm, needleless sampling
22 L	Mixing bag	BIOBGWBMR 022LC101	<ol style="list-style-type: none"> 1.2 C-Flex 1/4 id*7/16 od*100 cm, female MPC 3. Silicone 3/16 id*3/8 od*5 cm, needleless sampling 4. C-Flex 1/8 id*1/4 od*100 cm, female Luer 5. C-Flex 1/4 id*7/16 od*100 cm, male MPC
50 L	Mixing bag	BIOBGWBMR 050LC101	<ol style="list-style-type: none"> 1.2 C-Flex 1/4 id*7/16 od*100 cm, female MPC 3. C-Flex 1/4 id*7/16 od*100 cm, male MPC 4. C-Flex 1/8 id*1/4 od*100 cm, female Luer 5. Silicone 3/16 id*3/8 od*5 cm, needleless sampling
		BIOBGWBMR 050LS101	

* All connected by non-adjustable straight connectors

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

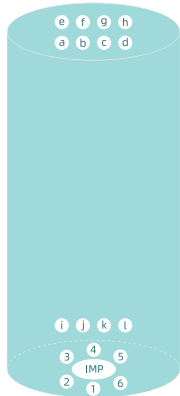
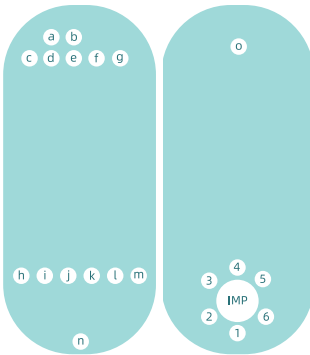
BIOGBRCF Single-Use Bottom-Driven Mixing Bioreactor Bags are designed to match single-use bioreactors used in biopharmaceuticals. The product can be used for scientific research, process development and commercial production of CHO, Vero, and MDCK cells.

- 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 μm , 300 μm , 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



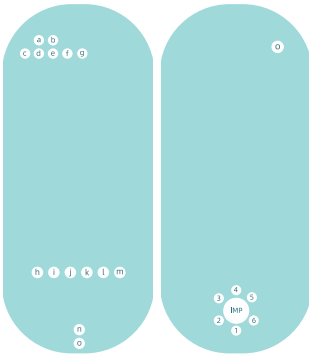
BIOGBR Single-Use Bioreactor (2000 L) and Controller

Standard Configuration of BIOGBRCF Single-Use Bottom-Driven Mixing Bioreactor Bags

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

Volume	Version	Product code	Configuration
500 L	Medium + Macro sparge	BIOGBRCF0500P101	<ul style="list-style-type: none"> Min. working volume: 100 L Max. working volume: 500 L Impeller: M40e, 3-blade, diameter 266 mm, angle 40°, bottom-driven eccentric mixing
	Micro + macro sparge	BIOGBRCF0500P201 BIOGBRCF0500P203	<ul style="list-style-type: none"> a, b (small feed port): 320 cm 1/8" × 1/4" C-Flex™ 374, plug c, g (inlet): 320 cm 3/8" × 5/8" C-Flex™ 374, plug d, f (inlet): 60 cm 3/8" × 5/8" C-Flex™ 374, plug 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 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
	Macro sparge	BIOGBRCF0500P301 BIOGBRCF0500P303	<ul style="list-style-type: none"> h (sampling port): 50 cm 1/8" × 1/4" C-Flex™ 374 (× 2), needleless sampling (× 2) i, j, k, l (sensor): female Kleenpak™ connector, 1/2" HB m (sensor): thermowell, ID 3.5 mm
	Medium sparge	BIOGBRCF0500P401	<ul style="list-style-type: none"> n (harvest tubing): 90 cm 1/2" × 3/4" C-Flex™ 374, plug, OD 1/8"-1" pinch valve 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
	Medium + Macro sparge	BIOGBRCF1000P101	<ul style="list-style-type: none"> Min. working volume: 200 L Max. working volume: 1000 L Impeller: M40e, 3-blade, diameter 317 mm, angle 40°, bottom-driven eccentric mixing
	Micro + Macro sparge	BIOGBRCF1000P201 BIOGBRCF1000P203	<ul style="list-style-type: none"> a, b (small feed port): 340 cm 1/8" × 1/4" C-Flex™ 374, plug c, d, f, g (inlet): 340 cm 1/2" × 3/4" C-Flex™ 374, plug 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 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
Macro sparge	BIOGBRCF1000P301 BIOGBRCF1000P303	<ul style="list-style-type: none"> h (sampling port): 50 cm 1/8" × 1/4" C-Flex™ 374 (× 2), needleless sampling (× 2) i, j, k, l (sensor): female Kleenpak™ connector, 1/2" HB m (sensor): thermowell, ID 3.5 mm 	
Medium sparge	BIOGBRCF1000P401	<ul style="list-style-type: none"> n (harvest tubing): 90 cm 1" × 1-3/8" C-Flex™ 374, plug, PureFit TCL stop clamp, OD 1-3/8", WALL3/16" 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 	

Volume	Version	Product code	Configuration
2000 L	Medium + Macro sparge	BIOGBRCF2000P101	<ul style="list-style-type: none"> Min. working volume: 400 L Max. working volume: 2000 L Impeller: M40e, 4-blade, diameter 419 mm, angle 40°, bottom-driven eccentric mixing
	Micro + Macro sparge	BIOGBRCF2000P201 BIOGBRCF2000P203	<ul style="list-style-type: none"> a, b (small feed port): 380 cm 1/8" x 1/4" C-Flex™ 374, plug c, d, f, g (inlet): 380 cm 1/2" x 3/4" C-Flex™ 374, plug 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
	Macro sparge	BIOGBRCF2000P301 BIOGBRCF2000P303	<ul style="list-style-type: none"> 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 h (sampling port): 50 cm 1/8" x 1/4" C-Flex™ 374 (x 2), needleless sampling (x 2)
	Medium sparge	BIOGBRCF2000P401	<ul style="list-style-type: none"> i, j, k, l (sensor): female Kleenpak™ connector, 1/2" HB m (sensor): thermowell, ID 3.5 mm n (harvest tubing): 90 cm 1" x 1-3/8" C-Flex™ 374, plug, PureFit TCL stop clamp, OD 1-3/8", WALL3/16" 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




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 condensation, returning water vapor from the gas back into the bag, ensuring the ventfilter remains unclogged

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

Volume	Version	Product code	Configuration
 <p>50 L</p>	Medium sparge	BIOGBRCF 0050P404	<ul style="list-style-type: none"> • Min. working volume: 15 L • Max. working volume: 50 L • Impeller: double-layer, 6 Rushton blades, pitch blade at the top, axial flow impeller, diameter: 195 mm, bottom-driven centric mixing • a, b, e (feeding port): 05 cm 1/8" x 1/4" C-Flex, hose plug • c (pressure monitoring): pressure sensor, 45 cm 1/2" x 3/4" C-Flex, hose plug
	Macro sparge	BIOGBRCF 0050P304	<ul style="list-style-type: none"> • 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 • f (feeding port): 205 cm 1/8" x 1/4" C-Flex (x2) , hose plug (x2) • g (spare vent filter inlet) : 30 cm 1" x 1-3/8" C-Flex , AseptiQuik® L sterile connector; • h (intlet): 205 cm 3/8" x 5/8" C-Flex, hose plug • i (sampling port): 50 cm 1/8" x 1/4" C-Flex(x 2), sterile sampling valve (x 2) • j, k (sensor): Kleenpak™ sterile connector female adapter
	Medium + Macro sparge	BIOGBRCF 0050P104	<ul style="list-style-type: none"> • l (sensor): thermowell, ID3.5 mm • 1, 3, 5 (harvest tubing): 128 cm 3/8" x 5/8" C-Flex, hose plug, OD1/8"-OD1" pinch valve • 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)

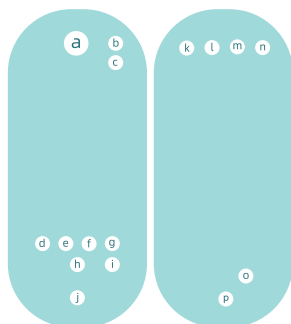
Features of BIOGBRTF Single-Use Top-Driven Bioreactor Bag

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.

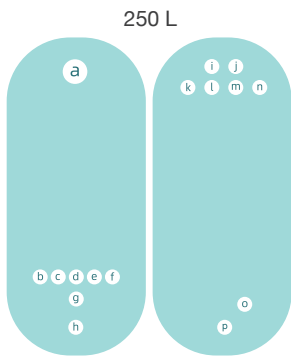
- RENOLIT 9101 multilayer co-extruded film, ULDPE fluid contact layer, offering excellent biocompatibility and chemical compatibility while ensuring low levels of extractable content
- The porous-frit microsparge column is designed from ultra-high molecular weight polyethylene (UHMW-PE), with pore sizes 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
50 L	Micro + Macro sparge 5:1	BIOGBRTF 0050C201	<ul style="list-style-type: none"> • a(top-driven mixing parts): 3-blade impeller, diameter: 111.1 mm, angle: 45° • b (headspace gas) : pressure sensor, CF2VTV0.2-33B1 (Meissner), 20 cm 1/2" x 3/4" C-Flex + 16 cm 1/4" x 7/16"C-Flex, 6 # quick plug for gas tubing • c (inlet / feeding port) : 150 cm 1/4" x 7/16" C-Flex, 30 cm 1/8" x 1/4" C-Flex plug • 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 • l (inlet) : 180 cm 3/8" x 5/8" C-Flex, plug • n (feeding port) : 15 cm 1/4" x 7/16" C-Flex, 150 cm 1/8" x 1/4" C-Flex, plug • 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
	Micro + Marco sparge 2:1	BIOGBRTF 0050C202	<ul style="list-style-type: none"> • d,e,f,g(sensor): AseptiQuik® G sterile connector, 1/2"HB • h (sampling port) : 30 cm 1/8" x 1/4" C-Flex, needless sampling 50 cm 1/8" x 1/4" C-Flex, plug • i (sensor) : thermowell, ID3.5 mm • j (harvest port) : 100 cm 1/2" x 3/4" C-Flex, 30 cm 3/8" x 5/8" C-Flex, plug • 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



Volume	Version	Product code	Configuration
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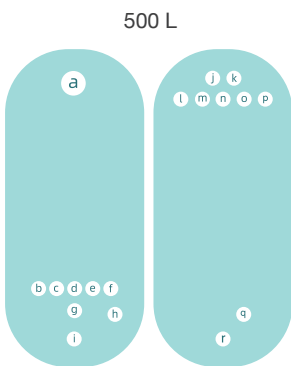


250 L
 Micro +
 Macro
 sparge
 5:1
 BIOGBRTF
 0250C201

- a (top-driven mixing parts): 3-blade impeller, diameter: 251 mm, angle: 45°
- i (headspace gas): pressure sensor, CS2VTV0.2-002 (Meissner), 20 cm 1/2" x 3/4" C-Flex + 16 cm 1/4" x 7/16" C-Flex, 6# quick plug for gas tubing
- m (feeding port): 15 cm 1/4" x 7/16" C-Flex, 180 cm 1/8" x 1/4" C-Flex, plug
- k, l (inlet / feeding port): 150 cm 3/8" x 5/8" C-Flex, Y connector, tubing 1: 30 cm 3/8" x 5/8" C-Flex, plug; tubing 2: 20 cm 3/8" x 5/8" C-Flex, 40 cm 1/8" x 1/4" C-Flex, plug
- n (inlet / feeding port): 150 cm 1/4" x 7/16" C-Flex, 50 cm 1/8" x 1/4" C-Flex, plug
- j (vent filter): CL2VTV0.2-002 (Meissner), Y connector, tubing 1: 30 cm 1/2" x 3/4" C-Flex; tubing 2: 20 cm 1/2" x 3/4" C-Flex, AseptiQuik® G sterile connector, 1/2" HB

Micro +
 Macro
 sparge
 2:1
 BIOGBRTF
 0250C202

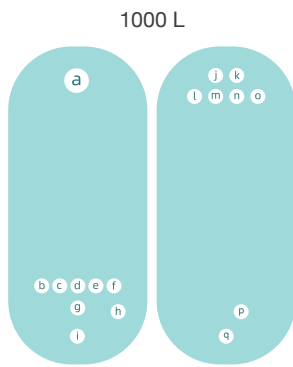
- b, c, d, e (sensor): AseptiQuik® G sterile connector, 1/2" HB
- g (sampling port): 30 cm 1/8" x 1/4" C-Flex, needless sampling; 50 cm 1/8" x 1/4" C-Flex, plug
- f (sensor): thermowell, ID3.5 mm
- h (harvest port): 150 cm 1/2" x 3/4" C-Flex, plug
- o, p (bottom gas): CF2VTV0.2-33B1 (Meissner), 15 cm 1/4" x 7/16" C-Flex, one-way valve, 150 cm 1/4" x 7/16" C-Flex, 6# quick plug for gas tubing



500 L
 Micro +
 Macro
 sparge
 5:1
 BIOGBRTF
 0500C201

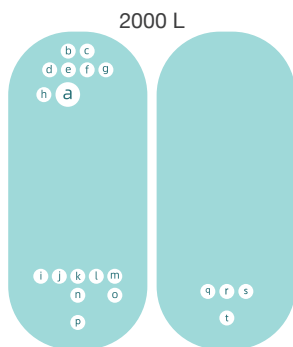
- a (top-driven mixing parts): 3-blade impeller, diameter: 251 mm, angle: 45°
- k (headspace gas): pressure sensor, CS2VTV0.2-002 (Meissner), 25 cm 1/2" x 3/4" C-Flex + 16 cm 1/4" x 7/16" C-Flex, 6# quick plug for gas tubing
- l (feeding port): 15 cm 1/4" x 7/16" C-Flex, 230 cm 1/8" x 1/4" C-Flex, plug
- m (inlet / feeding port): 250 cm 1/4" x 7/16" C-Flex, plug
- n, o (inlet / feeding port): 180 cm 3/8" x 5/8" C-Flex, connector tubing 1: 30 cm 3/8" x 5/8" C-Flex, plug; tubing 2: 30 cm 3/8" x 5/8" C-Flex, 30 cm 1/8" x 1/4" C-Flex, plug
- p (inlet / feeding port): 250 cm 3/8" x 5/8" C-Flex, plug
- j (vent filter): CUVTV0.2-1N002 (Meissner), connector, tubing 1: 30 cm 3/4" x 1" C-Flex; tubing 2: 20 cm 3/4" x 1" C-Flex, AseptiQuik® G sterile connector, 1/2" HB
- b, c, d, e, f (sensor): AseptiQuik® G sterile connector, 1/2" HB
- g (sampling port): 30 cm 1/8" x 1/4" C-Flex, needless sampling; 80 cm 1/8" x 1/4" C-Flex, plug
- h (sensor): thermowell, ID3.5 mm
- i (harvest port): 150 cm 1/2" x 3/4" C-Flex, plug
- q, r (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

Volume	Version	Product code	Configuration
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Micro +
Macro
sparge
5:1
BIOBGBRTF
1000C201

- a (top-driven mixing parts) : 3-blade impeller, diameter: 321 mm, angle :45°
- 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
- l (feeding port) : 15 cm 1/4" x 7/16" C-Flex, 250 cm 1/8" x 1/4" C-Flex, plug
- m (inlet / feeding port) : 250 cm 1/4" x 7/16" C-Flex, 30 cm 1/8" x 1/4" C-Flex, plug
- n,o (inlet / 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
- 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
- b,c,d,e,f (sensor) : AseptiQuik® G sterile connector, 1/2"HB
- g (sampling port) : 30 cm 1/8" x 1/4" C-Flex, needless sampling; 80 cm 1/8" x 1/4" C-Flex, plug
- h (sensor) : thermowell, ID3.5 mm
- 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
- 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



Micro +
Macro
sparge
5:1
BIOBGBRTF
2000C201

- a (top-driven mixing parts) : 3-blade impeller, diameter: 397 mm, angle: 45°
- 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
- d, g (ifeeding port) : 50 cm 1/4" x 7/16" C-Flex, 220 cm 1/8" x 1/4" C-Flex, plug
- e (inlet / feeding port) : 220 cm 1/2" x 3/4" C-Flex, 50 cm 3/8" x 5/8" C-Flex, plug
- f (inlet / feeding port) : 220 cm 1/4" x 7/16" C-Flex, 50 cm 1/8" x 1/4" C-Flex, plug
- h (inlet) : 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
- 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
- i,j,k,l,m (sensor) : AseptiQuik® G sterile connector, 1/2"HB
- n (sampling port) : 30 cm 1/8" x 1/4" C-Flex, needless sampling; 80 cm 1/8" x 1/4" C-Flex, plug
- o (sensor) : thermowell, ID3.5 mm
- p (harvest port) : 200 cm 3/4" x 1" C-Flex, TC 50
- 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

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.

Consumables 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

Product code	Matching type	Line 1	Line 2	Line 3	Feeding port	Film
BIOGMM2R1000S003	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
BIOGMM2R1000S007	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
BIOGMM2R1000S005	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
BIOGMM2R1000S008	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
BIOGMM2R2000S003	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
BIOGMM2R2000S007	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
BIOGMM2R2000S005	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
BIOGMM2R2000S008	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
BIOGMM2R3000S003	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
BIOGMM2R3000S007	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
BIOGMM2R3000S005	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
BIOGMM2R3000S008	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

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

Consumables Ordering Information

Single-use open bag

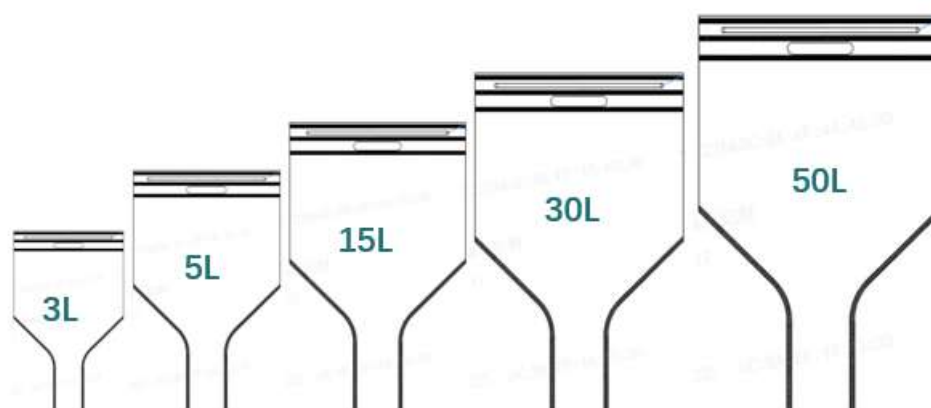
Product code	Matching type	Line 1	Film
BIOGBBLR0050S005		No outlet tubing	PP infusion film
BIOGBBLR0050S003	plastic bin 50 L	No outlet tubing	FL194A
BIOGBBLR0050S004		50 cm ID3/8"OD5/8" platinum cured silicone tubing + male MPC	FL194A
BIOGBBLR0100S005		No outlet tubing	PP infusion film
BIOGBBLR0100S003	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
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

Product code	Matching type	Line 1	Film
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

Product code	Matching type	Line 1	Film
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
BIOGBP0003S001	3 L	3" Feeding port	Anti-static film
BIOGBP0003S002	3 L	4" Feeding port	Anti-static film
BIOGBP0003S003	3 L	2" Feeding port	Anti-static film
BIOGBP0005S001	5 L	3" Feeding port	Anti-static film
BIOGBP0005S002	5 L	4" Feeding port	Anti-static film
BIOGBP0005S003	5 L	2" Feeding port	Anti-static film
BIOGBP0015S001	15 L	3" Feeding port	Anti-static film
BIOGBP0015S002	15 L	4" Feeding port	Anti-static film
BIOGBP0015S003	15 L	2" Feeding port	Anti-static film
BIOGBP0030S001	30 L	3" Feeding port	Anti-static film
BIOGBP0030S002	30 L	4" Feeding port	Anti-static film
BIOGBP0030S004	30 L	6" Feeding port	Anti-static film
BIOGBP0050S001	50 L	3" Feeding port	Anti-static film
BIOGBP-0050-S002	50 L	4" Feeding port	Anti-static film
BIOGBP-0050-S004	50 L	6" Feeding port	Anti-static film
BIOGBP-0050-S005	50 L	8" Feeding port	Anti-static film

Note: For powder-feeding bags of other sizes, please contact the local sales representative.

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, sealing 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



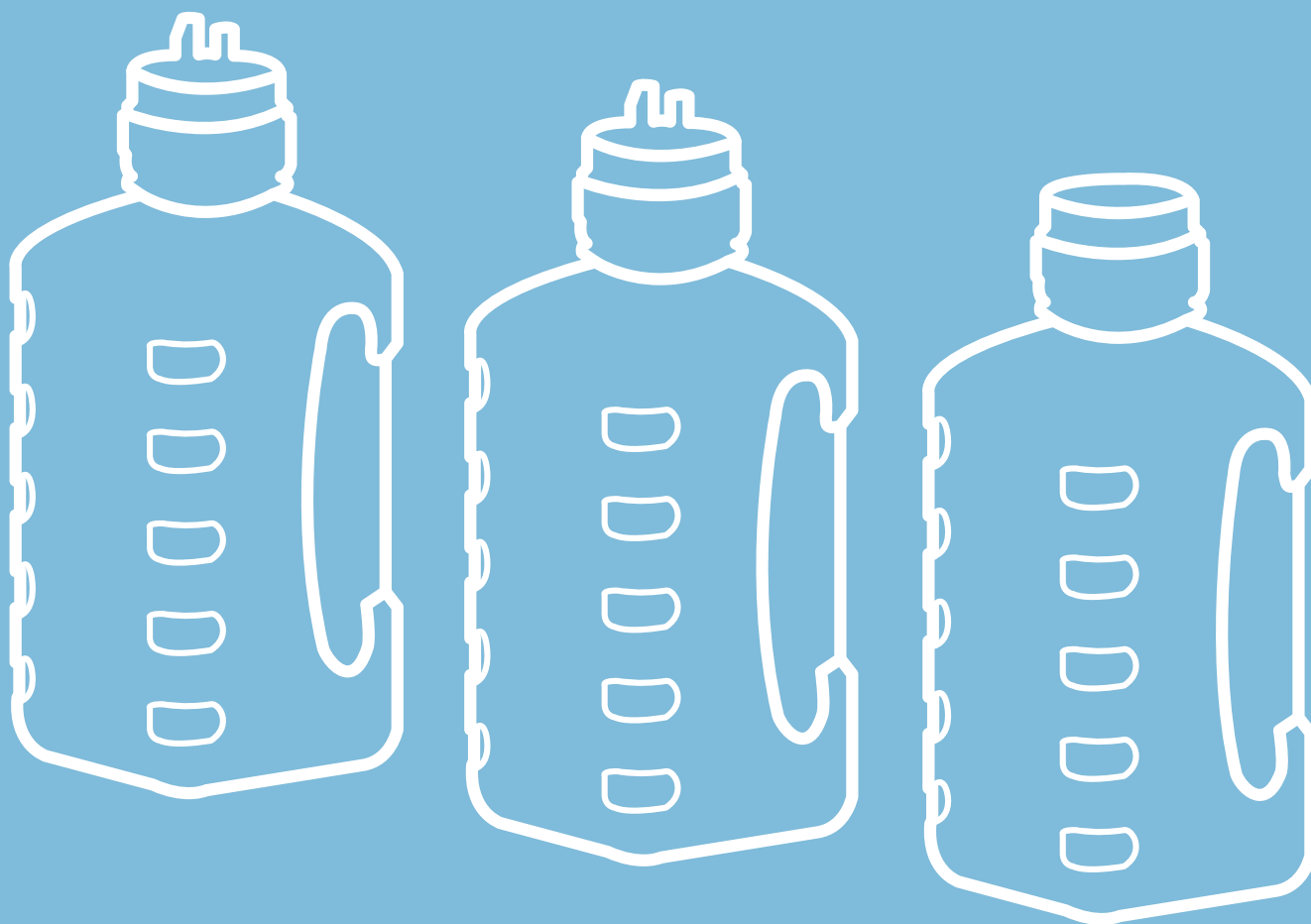
Liquid Storage Solution

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 ° C
- Resistant to moist heat sterilization at 121 ° 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	
BIOGBTA20ML001	BIOGBTB20ML001	20 mL	36*36*80	200	20 mm regular cap
BIOGBTA50ML001	BIOGBTB50ML001	50 mL	45*45*85	120	
BIOGBTA125ML001	BIOGBTB125ML001	125 mL	54*54*120	60	
BIOGBTA250ML001	BIOGBTB250ML001	250 mL	68*68*140	40	38 mm regular cap
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	
BIOGBTA20ML002	BIOGBTB20ML002	20 mL	36*36*80	200	20 mm 2-port cap, no tubing
BIOGBTA50ML002	BIOGBTB50ML002	50 mL	45*45*85	120	
BIOGBTA125ML002	BIOGBTB125ML002	125 mL	54*54*120	60	
BIOGBTA250ML002	BIOGBTB250ML002	250 mL	68*68*140	40	38 mm 2-port cap, no tubing
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	
BIOGBTA20ML003	BIOGBTB20ML003	20 mL	36*36*80	200	20 mm 3-port cap, no tubing
BIOGBTA50ML003	BIOGBTB50ML003	50 mL	45*45*85	120	
BIOGBTA125ML003	BIOGBTB125ML003	125 mL	54*54*120	60	
BIOGBTA250ML003	BIOGBTB250ML003	250 mL	68*68*140	40	38 mm 3-port cap, no tubing
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
					Inner tubing: silicone tubing, 1/4"*7/16", bottoming
BIOGBTA5L008	BIOGBTB5L008	5 L	180*180*332	80 mm 2-port cap	Outer tubing 1: thermoplastic tubing, 3/8"*5/8", 30 cm, plug
					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 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	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
BIOGBTA20ML010	BIOGBTB20ML010	20 ml	36*36*80		
BIOGBTA50ML010	BIOGBTB50ML010	50 ml	45*45*85		
BIOGBTA125ML010	BIOGBTB125ML010	125 ml	54*54*120	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
BIOGBTA250ML010	BIOGBTB250ML010	250 ml	68*68*140		
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" * 2, inner 1/8" * 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" * 2, inner 1/8" * 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 welded 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

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
BIOGGBPR0050S003	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
BIOGGBPR0050S004	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
BIOGGBPR0050S005	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
BIOGGBPR0050S006	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
BIOGGBPR0100S003	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
BIOGGBPR0100S004	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
BIOGGBPR0100S005	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
BIOGGBPR0100S006	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
BIOGGBPR0200S003	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
BIOGGBPR0200S004	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
BIOGGBPR0200S005	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
BIOGGBPR0200S006	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
BIOGGBPR0300S003	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
BIOGGBPR0300S004	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
BIOGGBPR0300S005	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
BIOGGBPR0300S006	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
BIOGGBPR0500S003	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
BIOGGBPR0500S004	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
BIOGGBPR0500S005	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
BIOGGBPR0500S006	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

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.

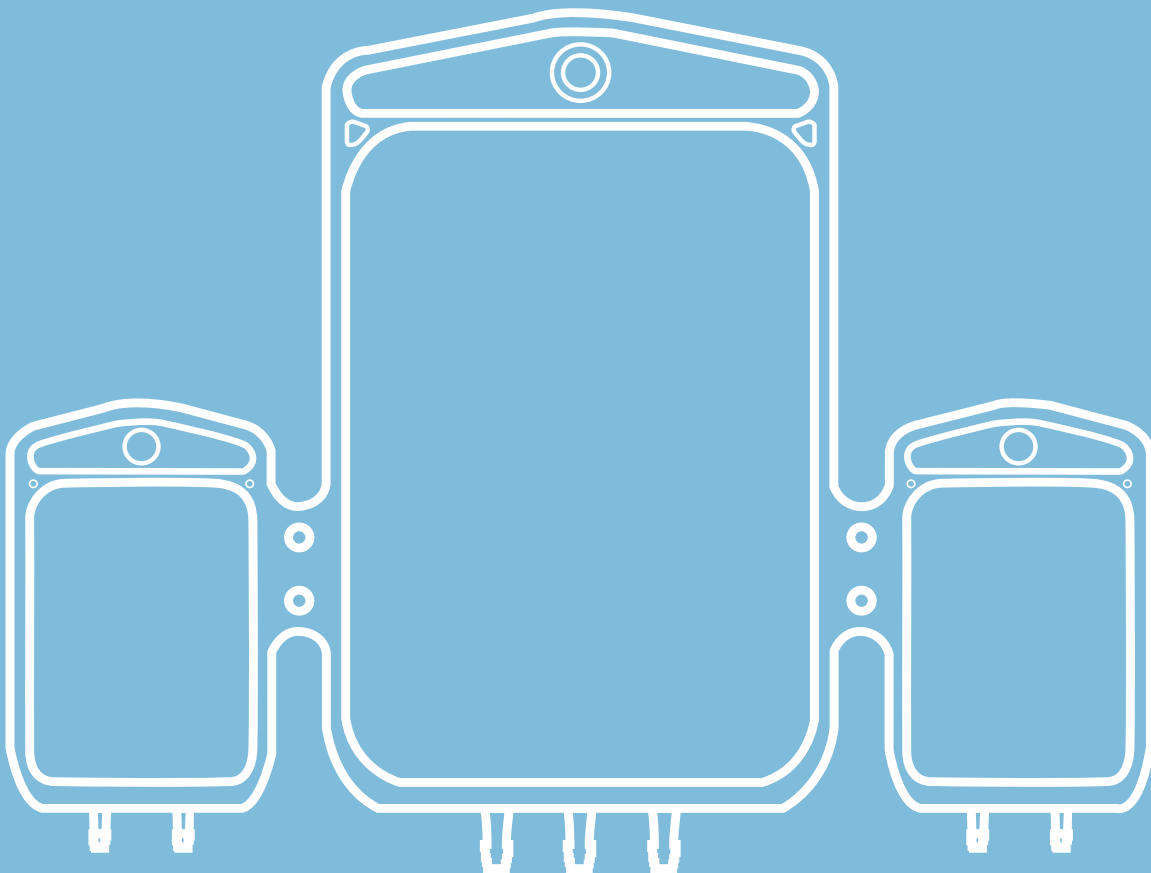
Ordering Information:

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

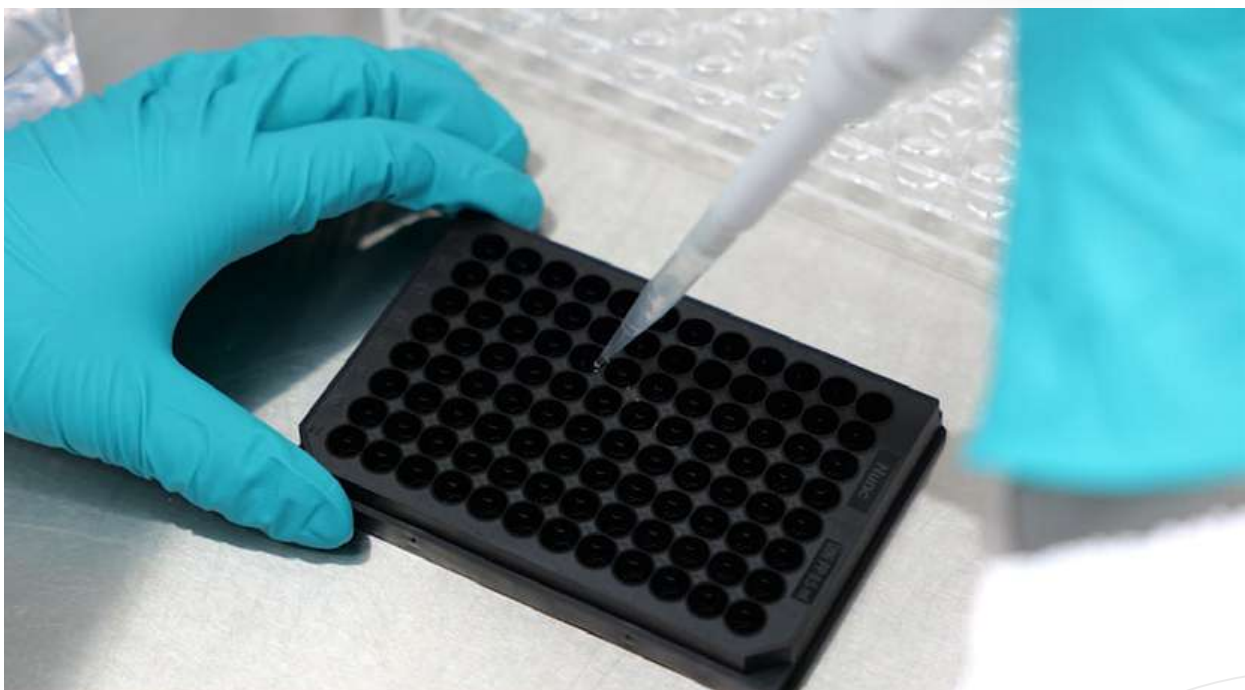
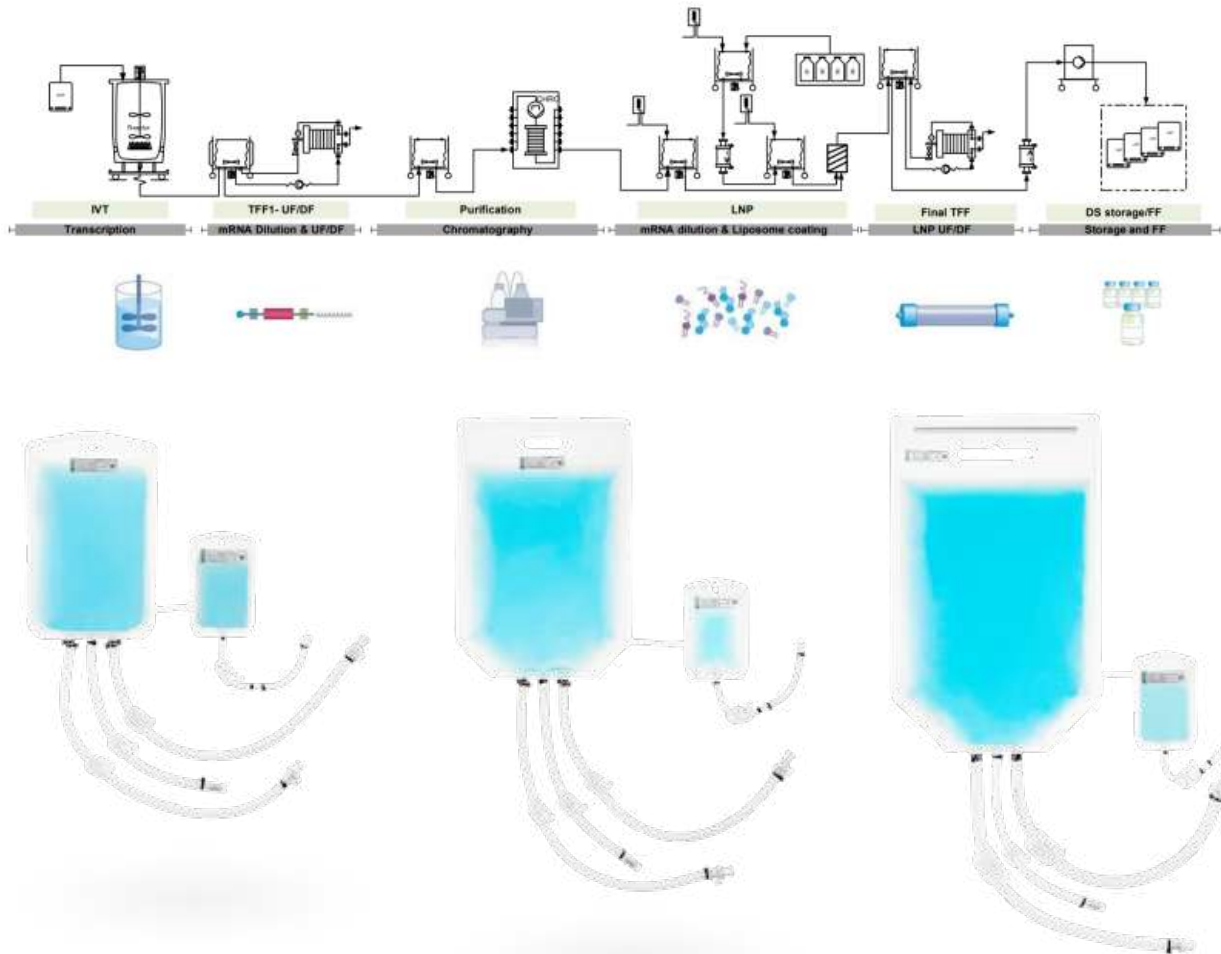
RNase-free Disposable Consumables

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

Single-use storage bottle	Batch inspection	
Single-use 2D storage bag	Individual/hybrid/batch inspection	
Single-use 3D storage bag	Individual/hybrid/batch inspection	DNase-free/ RNase-free/ Nuclease-free
Single-use mixing bag	Individual/hybrid/batch inspection	(DNase-free & RNase-free)
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		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	Regular cap	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		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	2-port cap	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		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	3-port cap	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

Ordering Information:

DNase-free product code	RNase-free product code	Nuclease-free product code	Volume	Line
BIOGBDX005S001	BIOGBRX005S001	BIOGBNX005S001	5 ml	batch inspection, 5 mL satellite bag 20 cm ID1/8"OD1/4" platinum cured silicone tubing + female Luer 10 cm ID1/8"OD1/4" platinum cured silicone tubing + female Luer
BIOGBDX010S001	BIOGBRX010S001	BIOGBNX010S001	10 ml	10 mL satellite bag (only for 10ml storage bag) 50 mL satellite bag (only for 20ml storage bag) 20 cm ID1/8"OD1/4" platinum cured silicone tubing + female Luer 10 cm ID1/8"OD1/4" platinum cured silicone tubing + female Luer
BIOGBDX020S001	BIOGBRX020S001	BIOGBNX020S001	20 ml	10 cm ID1/8"OD1/4" platinum cured silicone tubing + female Luer 10 cm ID1/8"OD1/4" platinum cured silicone tubing + needleless sampling
BIOGBDX050S001	BIOGBRX050S001	BIOGBNX050S001	50 ml	50mL satellite bag
BIOGBDX100S001	BIOGBRX100S001	BIOGBNX100S001	100 ml	20 cm ID1/8"OD1/4" platinum cured silicone tubing + female Luer 30 cm ID1/8"OD1/4" platinum cured silicone tubing + female Luer
BIOGBDX250S001	BIOGBRX250S001	BIOGBNX250S001	250 ml	30 cm ID1/8"OD1/4" platinum cured silicone tubing + female Luer 30 cm ID1/8"OD1/4" platinum cured silicone tubing+ needleless sampling
BIOGBDX500S001	BIOGBRX500S001	BIOGBNX500S001	500 ml	
BIOGBD0001S002	BIOGBR0001S002	BIOGBN0001S002	1 L	50mL satellite bag 20 cm ID1/8"OD1/4" C-Flex thermoplastic tubing + female Luer 30 cm ID1/4" * OD7/16" C-Flex thermoplastic tubing + plug
BIOGBD0002S002	BIOGBR0002S002	BIOGBN0002S002	2 L	30 cm ID1/4" * OD7/16" C-Flex thermoplastic tubing + plug 20 cm ID1/4"OD7/16" C-Flex thermoplastic tubing + needleless sampling
BIOGBD0005S002	BIOGBR0005S002	BIOGBN0005S002	5 L	
BIOGBD0010S002	BIOGBR0010S002	BIOGBN0010S002	10 L	50mL satellite bag 20 cm ID1/8"OD1/4" C-Flex thermoplastic tubing + female Luer 30 cm ID3/8" * OD5/8" C-Flex thermoplastic tubing + plug
BIOGBD0020S002	BIOGBR0020S002	BIOGBN0020S002	20 L	30 cm ID3/8" * OD5/8" C-Flex thermoplastic tubing + plug 20 cm ID1/4"OD7/16" C-Flex thermoplastic tubing + needleless sampling
BIOGBD0050S002	BIOGBR0050S002	BIOGBN0050S002	50 L	

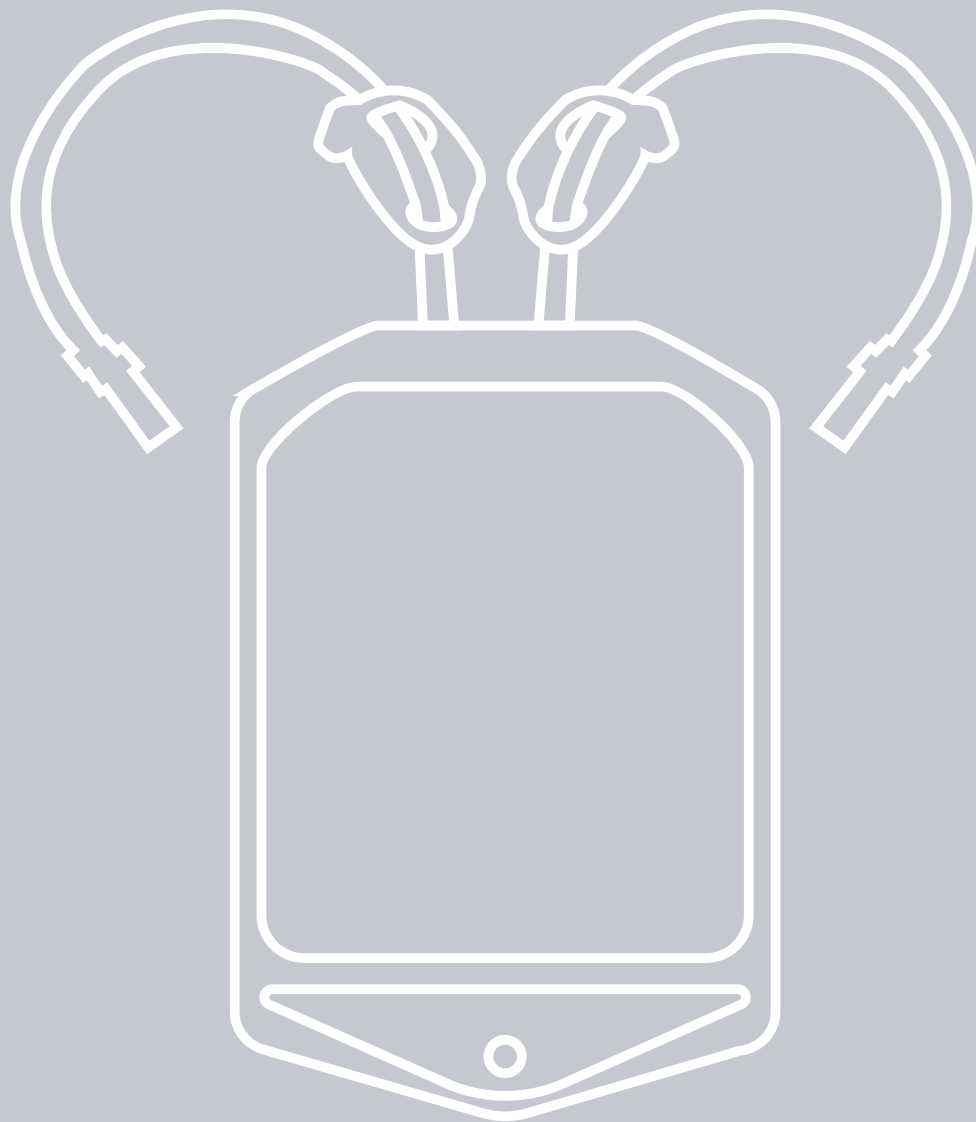
DNase-free product code	RNase-free product code	Nuclease-free product code	Volume	Line
BIOGBD0001S003	BIOGGBR0001S003	BIOGBN0001S003	1 L	50 ml satellite bag 20 cm ID1/8" * OD1/4" platinum cured silicone tubing + female Luer
BIOGBD0002S003	BIOGGBR0002S003	BIOGBN0002S003	2 L	30 cm ID1/4" * OD7/16" Platinum 50 platinum cured silicone tubing + AseptiQuik® G connector 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	BIOGGBR0005S003	BIOGBN0005S003	5 L	
BIOGBD0010S003	BIOGGBR0010S003	BIOGBN0010S003	10 L	50 ml satellite bag 20 cm ID1/8" * OD1/4" platinum cured silicone tubing + female Luer
BIOGBD0020S003	BIOGGBR0020S003	BIOGBN0020S003	20 L	30 cm ID3/8" * OD5/8" Platinum 50 platinum cured silicone tubing + AseptiQuik® G connector 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	BIOGGBR0050S003	BIOGBN0050S003	50 L	
BIOGBD0001S004	BIOGGBR0001S004	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
BIOGBD0002S004	BIOGGBR0002S004	BIOGBN0002S004	2 L	30 cm ID1/4" * OD7/16" Platinum 50 platinum cured silicone tubing + female MPC 30 cm ID1/4" * OD7/16" C-Flex thermoplastic tubing + male MPC 20 cm ID1/4" * OD7/16" C-Flex thermoplastic tubing + plug
BIOGBD0005S004	BIOGGBR0005S004	BIOGBN0005S004	5 L	
BIOGBD0010S004	BIOGGBR0010S004	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
BIOGBD0020S004	BIOGGBR0020S004	BIOGBN0020S004	20 L	30 cm ID3/8" * OD5/8" Platinum 50 platinum cured silicone tubing + female MPC 30 cm ID3/8" * OD5/8" C-Flex thermoplastic tubing + female MPC 20 cm ID1/4" * OD7/16" C-Flex thermoplastic tubing + plug
BIOGBD0050S004	BIOGGBR0050S004	BIOGBN0050S004	50 L	

DNase-free product code	RNase-free product code	Nuclease-free product code	Volume	Line
BIOGBD0001S005	BIOGGBR0001S005	BIOGGBN0001S005	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 20 cm ID1/4" * OD7/16" C-Flex thermoplastic tubing + needleless sampling
BIOGBD0002S005	BIOGGBR0002S005	BIOGGBN0002S005	2 L	
BIOGBD0005S005	BIOGGBR0005S005	BIOGGBN0005S005	5 L	
BIOGBD0010S005	BIOGGBR0010S005	BIOGGBN0010S005	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	BIOGGBR0020S005	BIOGGBN0020S005	20 L	
BIOGBD0050S005	BIOGGBR0050S005	BIOGGBN0050S005	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.

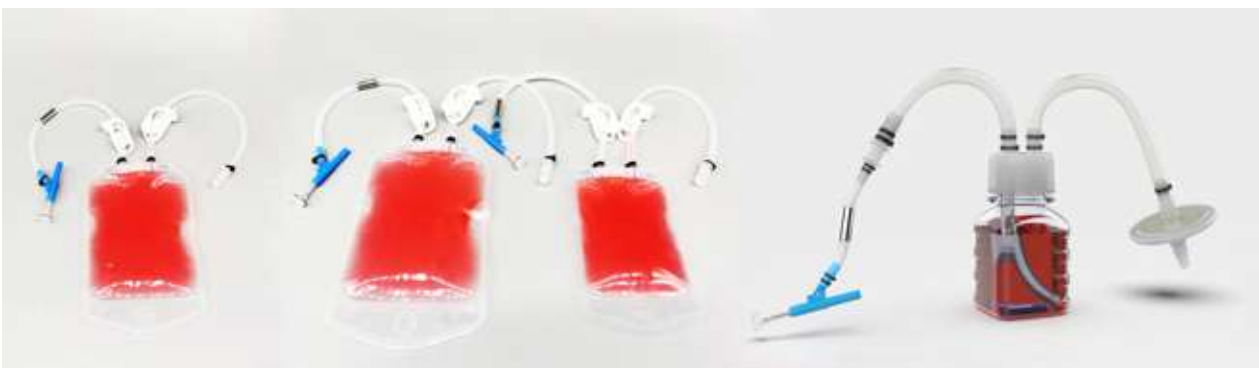


Features

- 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		
BIOGBSX100S005	100 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
BIOGBSX250S005	250 mL		
BIOGBSX500S005	500 mL		
BIOGBS0001S005	1000 mL		
BIOGBSX050S006	2 × 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
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		

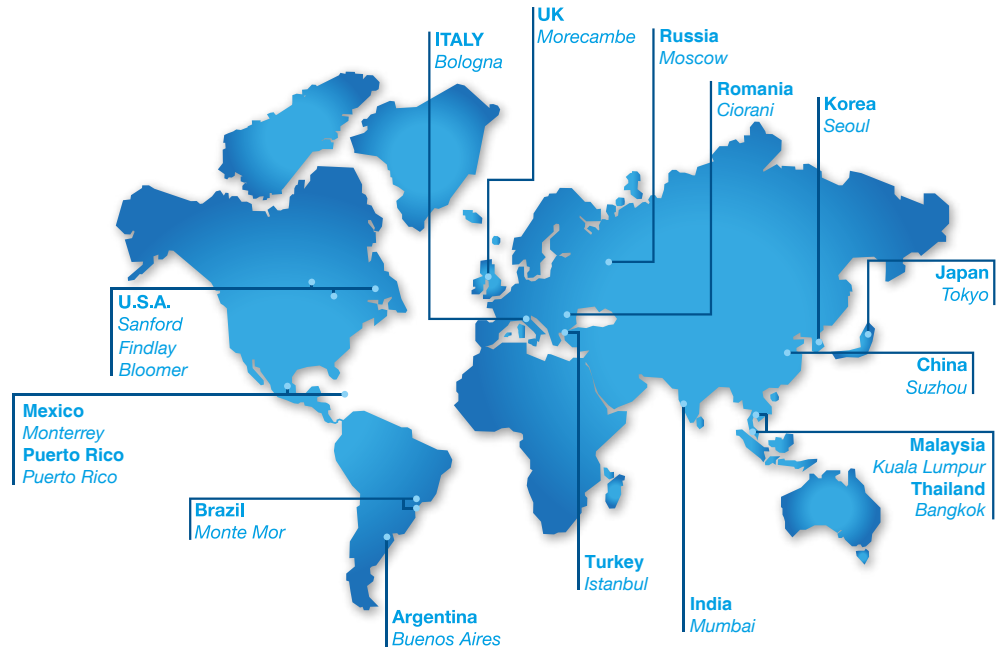
Sampling bottle

Product code	Volume	Inlet tubing	Outlet tubing
BIOGTSTGST037	20 mL		
BIOGTSTGST038	50 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
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	NA	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	NA	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	NA	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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