

The *BioPro KSO* is designed for protecting your critical and high value downstream systems.

It helps in significant reduction of bioburden and complete removal of particulate contamination. It is ideal for applications which do not require sterilization but where reduction in bio load in the process fluid is the objective.

It improves the process efficiency by reducing filter sizing and prolonging life of expensive sterilizing filters.

These filters provide easy scalability from process development labs to actual manufacturing processes.

### Special Features

- Validated for high bio-burden reduction
- High flow rates
- High throughput
- Low protein binding
- No media migration
- Biologically inert
- Easy installation

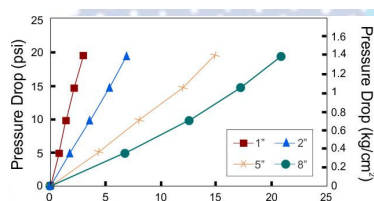
### Applications

- Clarification of cell harvest
- Buffer filtration
- In process protein filtration
- Prefiltration to sterile filtration
- Prefiltration to virus filtration

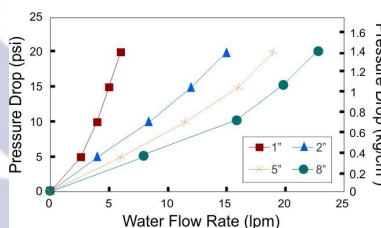


### Typical Water Flow Rates

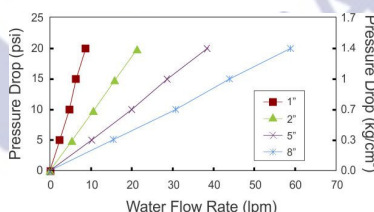
#### 0.1µm BioPro KSO



#### 0.2µm BioPro KSO



#### 0.45µm BioPro KSO



### Specifications

**Integrity Test (Bubble Point)**  
**Specifications (water wetted)**  
**0.1µm:** ≥ 40psi, **0.2µm:** ≥ 30psi

### Bacterial Retention

**0.1µm:** LRV> 6 for *B.diminuta* ATCC 19146 per cm<sup>2</sup> of filter area

**0.2µm:** LRV> 5 for *B.diminuta* ATCC 19146 per cm<sup>2</sup> of filter area

### Material of Construction

*Housing* – Polypropylene

*Filter* – Polyethersulfone

*Drainage Layer*-Polypropylene

### Maximum Differential Pressure

≤ 4 Kg/cm<sup>2</sup> @ 30° C

### Maximum Operating Temperature

80° C @ < 2 Kg/cm<sup>2</sup>

### Sterilization

Autoclave	Autoclavable at 125° C for 30 minutes for 25 cycles. Cannot be in-line steam sterilized.
Gas	Sterilization by Ethylene Oxide

### Oxidizable Matter

Passes test as per USP <1231>

### Extractables

Passes NVR test as per USP <661>

### Bacterial Endotoxin

Aqueous extracts exhibit < 0.25 EU/ml as established by LAL Test as per USP <85>

### Fiber Release:

Complies with USFDA CFR Title 21, 210.3 (b) (6)

### Particle Release:

The filtrate complies with USP <788> test for particulate matter in injections

### Biosafety

**Toxicity:** Passes Bioreactivity test, *In-vivo*, as per USP <88> for Class VI plastics

### Indirect Food Additives:

Passes as per USFDA 21 CFR 177.1520

### pH Compatibility:

Compatible with 1-14 pH

### Ordering Information

Type		Size		Pore Size		I/O Connection		X	X	Sterility		Pack Size	
	Code		Code		Code		Code				Code	Qty	Code
BioPro KSO	DBKO	1"	51	0.1µm	36	¼" SHB	A			Non Sterile	1	1	01
		2"	52	0.2µm	01	½"Hose Barb	D			EO Sterile	2		
		5"	53	0.45µm	02	1½" Sanitary Flange	E						
		8"	57			¾" Sanitary Flange	S						
						Quick Connector	J						
								*Single Step ½"Hose Barb and 3/8" hose barb end connections are not available in 1" capsule filters					
								**Female luer lock is available in 1" and 2" capsule filters only					
								***Male luer slip is available only in 1" capsule filter as outlet					
</													

\*Single Step ½" Hose Barb and 3/8" hose barb end connections are not available in 1" capsule filters

\*\*Female luer lock is available in 1" and 2" capsule filters only

\*\*\*Male luer slip is available only in 1" capsule filter as outlet



The BioPro KSO-y is designed for protecting your critical and high value downstream systems.

It helps in significant reduction of bioburden and complete removal of particulate contamination. It is ideal for applications which do not require sterilization but where reduction in bio load in the process fluid is the objective.

It improves the process efficiency by reducing filter sizing and prolonging life of expensive sterilizing filters.

These filters provide easy scalability from process development labs to actual manufacturing processes.

### Special Features

- Validated for high bio-burden reduction
- High flow rates
- High throughput
- Low protein binding
- No media migration
- Biologically inert
- Easy installation

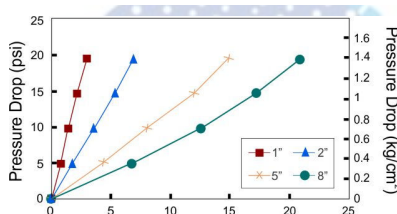
### Applications

- Clarification of cell harvest
- Buffer filtration
- In process protein filtration
- Prefiltration to sterile filtration
- Prefiltration to virus filtration

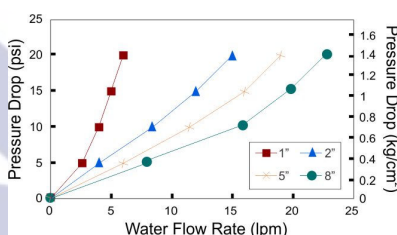


### Typical Water Flow Rates

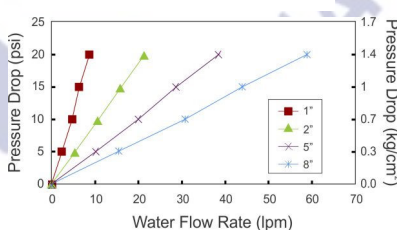
#### 0.1µm BioPro KSO-y



#### 0.2µm BioPro KSO-y



#### 0.45µm BioPro KSO-y



### Specifications

#### Integrity Test (Bubble Point)

#### Specifications (water wetted)

0.1µm: ≥ 40psi, 0.2µm: ≥ 30psi

### Bacterial Retention

0.1µm: LRV> 6 for *B.diminuta* ATCC 19146 per cm<sup>2</sup> of filter area

0.2µm: LRV> 5 for *B.diminuta* ATCC 19146 per cm<sup>2</sup> of filter area

### Material of Construction

Housing – Polypropylene

Filter – Polyethersulfone

Drainage Layer-Polyethylene

### Maximum Differential Pressure

≤ 4 Kg/cm<sup>2</sup> @ 30° C

### Maximum Operating Temperature

80° C @ < 2 Kg/cm<sup>2</sup>

### Sterilization

Irradiation	Gamma irradiatable upto 50 kGy
Autoclave	Autoclavable at 125° C for 30 minutes, 1 cycle after gamma Irradiation. Cannot be in-line steam sterilized.

### Oxidizable Matter

Passes test as per USP <1231>

### Extractables

Passes NVR test as per USP <661>

### Bacterial Endotoxin

Aqueous extracts exhibit < 0.25 EU/ml as established by LAL Test as per USP <85>

### Fiber Release:

Complies with USFDA CFR Title 21, 210.3 (b) (6)

### Particle Release:

The filtrate complies with USP <788> test for particulate matter in injections

### Biosafety

**Toxicity:** Passes Bioreactivity test, *In-vivo*, as per USP <88> for Class VI plastics

### Indirect Food Additives:

Passes as per USFDA 21 CFR 177.1520

### pH Compatibility:

Compatible with 1-14 pH

### Ordering Information

Type		Size		Pore Size		I/O Connection		Radiation Sterilizable		X	Sterility		Pack Size	
	Code		Code		Code		Code		Code			Code	Qty	Code
BioPro KSO	DBKO	1"	51	0.1µm	36	¼" SHB	A	Yes	R		Non Sterile	1	1	01
		2"	52	0.2µm	01	½"Hose Barb	D	No****	X		Gamma Sterile	3		
		5"	53	0.45µm	02	1½" Sanitary Flange	E	*Single Step ½"Hose Barb and 3/8" hose barb end connections are not available in 1" capsule filters **Female luer lock is available in 1" and 2" capsule filters only ***Male luer slip is available only in 1" capsule filter as outlet ****Gamma Sterile capsule filters cannot be gamma Irradiated again						
		8"	57			¾" Sanitary Flange	S							
						Quick Connector	J							
						Single Step ½"Hose Barb*	Q							
						Female Luer Lock**	U							
						Male Luer Slip***	W							
						3/16" Hose Barb	N							
						3/8" Hose Barb*	I							
Example:		DBKO	57	01		EE		X	X	3		01		

\*Single Step 1/2" Hose Barb and 3/8" hose barb end connections are not available in 1" capsule filters

\*\*Female luer lock is available in 1" and 2" capsule filters only

\*\*\*Male luer slip is available only in 1" capsule filter as outlet

\*\*\*\*Gamma Sterile capsule filters cannot be gamma irradiated again



# BioPro KSO-γ

## Polyethersulfone Membrane

### Bioburden Reduction Large Capsule Filters

The BioPro KSO-γ capsule filters are designed for protecting your critical and high value downstream systems.

These help in significant reduction of bioburden and complete removal of particulate contamination and are ideal for applications which do not require sterilization but where reduction in bio load in the process fluid is the objective.

These improve the process efficiency by reducing filter sizing and prolonging life of expensive sterilizing filters.

#### Special Features

- Validated for high bio-burden reduction
- High flow rates
- High throughput
- Low protein binding
- No media migrating
- Biologically inert
- Easy installation

#### Applications

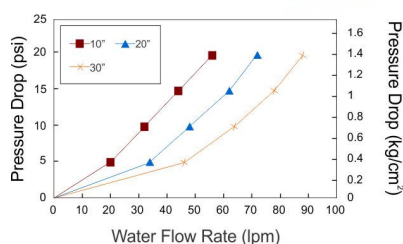
- Clarification of cell harvest
- Buffer filtration
- In process protein filtration
- Prefiltration to sterile filtration
- Prefiltration to virus filtration

#### Ordering Information

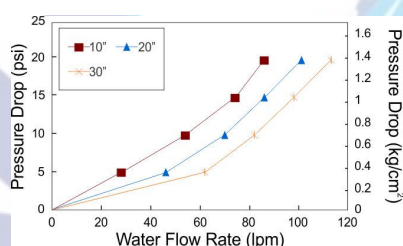


#### Typical Water flow rates

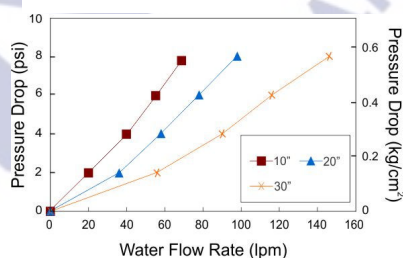
##### 0.1μm BioPro KSO-γ



##### 0.2μm BioPro KSO-γ



##### 0.45μm BioPro KSO-γ



#### Specifications

##### Integrity Test (Bubble Point)

##### Specifications (water wetted)

0.1μm: ≥ 40psi, 0.2μm: ≥ 30psi

#### Bacterial Retention

0.1μm: LRV> 6 for *B.diminuta* ATCC 19146 per cm<sup>2</sup> of filter area

0.2μm: LRV> 5 for *B.diminuta* ATCC 19146 per cm<sup>2</sup> of filter area

#### Material of Construction

Housing – Polypropylene

Filter – Polyethersulfone

Drainage Layer-Polyethylene

#### Maximum Differential Pressure

≤ 4 Kg/cm<sup>2</sup> @ 30° C

#### Maximum Operating Temperature

80° C @ < 2 Kg/cm<sup>2</sup>

#### Sterilization

Irradiation	Gamma irradiatable upto 50 kGy
Autoclave	Autoclavable at 125° C for 30 minutes, 1 cycle after gamma irradiation. Cannot be in-line steam sterilized.

#### Oxidizable Matter

Passes test as per USP <1231>

#### Extractables

Passes NVR test as per USP <661>

#### Bacterial Endotoxin

Aqueous extracts exhibit < 0.25 EU/ml as established by LAL Test as per USP <85>

#### Fiber Release:

Complies with USFDA CFR Title 21, 210.3 (b) (6)

#### Particle Release:

The filtrate complies with USP <788> test for particulate matter in injections

#### Biosafety

##### Toxicity:

Passes Bioreactivity test, *In-vivo*, as per USP <88> for Class VI plastics

#### Indirect Food Additives:

Passes as per USFDA 21 CFR 177.1520

#### pH Compatibility:

Compatible with 1-14 pH

Type		Size		Pore Size		Inlet/outlet		Radiation Sterilizable		Inline/T-Line		Sterility		Pack size		
	Code		Code		Code		Code		Code		code		code		code	
BioPro KSO		LBKO	5"	53	0.1µm	36	Single Step ½" hose barb	Q	Yes	R	Inline	X	Non Sterile	1	1	01
			10"	54	0.2µm	01	1½" Sanitary Flange	E	No**	X	T-Line***	T	Gamma Sterile	3		
			20"	55	0.45µm	02	3/8" Hose Barb	I	*1" hose barb connection is not available in 5" capsule filter **Gamma sterile capsule filters cannot be gamma Irradiated again ***T-J line is not available in 5" capsule filters							
			30"	56			1" Hose Barb*	Z								

#### Example :

LBKO	56	01	QQ	R	X	1	01
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DST LBKORXX1529C