

## PLEATED FILTER CARTRIDGES

These cartridges are designed for general purpose use wherever a cost effective filter is required:

### **Pleated Membrane Media Filter Cartridges**

#### **DPS grade Dual Layered Polyethersulfone Membrane Media Filter Cartridges**

DPS General grade dual layered Polyethersulfone cartridges are custom configured to increase the surface area and give maximum throughputs for general purpose use wherever a cost effective membrane filter is required.

#### **GPS grade Polyethersulfone Membrane Media Filter Cartridges**

Polyethersulfone membrane cartridges priced below special purpose cartridges. Still integrity testable, but with greater dirt holding capacity.

#### **GNM grade Nylon Membrane Media Filter Cartridges**

Nylon Membrane cartridges capable of removing particles below the pleated pore size of the filter. Low level of extractables and excellent chemical compatibility with solvents.

#### **GPM grade Polypropylene Membrane Media Filter Cartridges**

GPM filters lower the cost of chemical/solvent filtration. GPM is often used in place of Teflon Membrane because of lower cost and no undesirable extractables.

#### **GTM Teflon Membrane Media Filter Cartridges**

Typical applications include filtration of aggressive fluids, vent filtration, air and gas filtration. These cartridges are found in the manufacturing processes of Pharmaceutical companies, semi-conductor manufacturers and bulk chemical companies.

#### **WPS water grade Polyethersulfone Cartridges**

WPS water grade Polyethersulfone cartridges are designed for general water purpose use, wherever a cost effective membrane filter is required. WPS cartridges are flushed with 17+ megohm-cm water to remove potential extraneous manufacturing debris. Priced below general purpose cartridges, WPS cartridges are still manufactured with the same careful attention to both quality and performance.



### **Pleated Depth Media Filter Cartridges**

#### **GGD grade Fiber Glass Depth Media Filter Cartridges**

Fiber glass depth media cartridges flushed to remove manufacturing debris and individually integrity tested. Used in food, water and biological applications where heavy contamination loads plus other types of filters and maximum retention is required.

#### **GPD grade Polypropylene Depth Media Filter Cartridges**

Designed to hold the maximum amount of filter media that can be completely and effectively utilized in a cartridge, these filters lower the cost of filtration. These cartridges are flushed with 17+ meg ohm-cm water to remove potential extraneous manufacturing debris. These cartridge modules are also individually tested.

### **Commercial Pleated Depth Media Filter Cartridge**

#### **CPD grade Commercial Pleated Depth Media Filter Cartridges**

CPD Pleated polypropylene depth cartridges are designed for clarifying applications requiring high flow capacity. The depth media utilized in the CPD product line is high loft Melt-blown polypropylene which gives exceptional flow characteristics and high dirt holding capacity because of its high internal porosity.





## GTM grade

### PTFE Membrane Media Filter Cartridges Engineered and Manufactured for Cost Effective Filtration

Distributed by: John Mulhern Company  
PO Box 6604, Santa Rosa, Ca 95406

(800) 761-9201 (707) 578-5105  
fx (707) 578-5105  
info@jmulhern.com

GTM grade PTFE cartridges are designed for general purpose use wherever a cost effective PTFE membrane filter is required. Manufactured with inherently hydrophobic PTFE membrane, these cartridges are designed for use in the filtration of aggressive solvents, and as compressed gas and vent filters. These cartridges are found in the manufacturing processes of pharmaceutical companies, semi-conductor manufacturers and bulk chemical companies. The cartridge surface area, filter core design, pleat configuration and pleat packing density have been optimized to provide increased cartridge life resulting in lower filtration operating costs. Each cartridge module is integrity tested.

### Construction Materials <sup>1</sup>

**Filtration Media:** ..... PTFE  
**Filtration Media Support:** ..... Polypropylene  
**End Caps:** ..... Polypropylene  
**Center Core:** ..... Polypropylene  
**Outer Support Cage:** ..... Polypropylene  
**Sealing Method:** ..... Thermal Bonding  
**O-rings:** ..... Buna, Viton®, EP, Silicone, Teflon® Encapsulated Silicone, Teflon® Encapsulated Viton®.

<sup>1</sup>All materials of construction are FDA accepted. Final assemblies have been validated to pass USP class 6 Toxicology extractable tests, oxidizable substances for plastics, endotoxin level and other quality tests.

### Maximum Operating Parameters

**Forward Differential Pressure:** ... 50 psi (3.4 bar) at 20°C.  
**Reverse Differential Pressure:** .... 40 psi (2.7 bar) at 20°C.  
**Operating Temperature:** ..... 180°F (82°C) at 10 psid (0.69 bar) in water.

### Dimensions

**Length:** ..... 5 to 40 inches (12.7 to 101.6 cm) nominal  
**Outside Diameter:** ..... 2.75 inches (7.0 cm) nominal  
**Filtration Area:** ..... 7.5 ft<sup>2</sup> (0.70 m<sup>2</sup>) Per 10" length

### Flow Rate

The following table represents typical water flow and air flow rates. These values are approximations because of the differences in pressure drop encountered in housings and piping systems. Extrapolation to multiple length cartridges in multi-round housings can be done for sizing purposes. Exact flow rates will be installation dependent.

Pore	0.1 µm	0.22 µm	0.45 µm
SCFM	>26 SCFM/psid/10 inch cartridge length	>42 SCFM/psid/10 inch cartridge length	>68 SCFM/psid/10 inch cartridge length
GPM	1.25 gpm/psid/10 inch cartridge length	2.8 gpm/psid/10 inch cartridge length	5.7 gpm/psid/10 inch cartridge length
Pore	1.0 µm	3.0 µm	
SCFM	>85 SCFM/psid/10 inch cartridge length	>120 SCFM/psid/10 inch cartridge length	
GPM	9.0 gpm/psid/10 inch cartridge length	11 gpm/psid/10 inch cartridge length	



### Applications

#### Final Filtration of:

- Compressed Air
- Solvents
- Pressurized Gases
- Tank Ventilation

### Sanitization / Sterilization

**Filtered Hot Water:** ..... 194°F (90°C)

**Autoclave:** ..... 260°F (127°C), 30 min, multiple cycles

**In-line Steam:** ..... 275°F (135°C), 30 min, multiple cycles

**Chemical Sanitization:** ..... Industry standard concentrations of hydrogen peroxide, paracetic acid, sodium hypochlorite and other selected chemicals. Sanitization protocols designed to extend the useful life of GTM cartridges are available from Critical Process Filtration, Inc.®.

## Integrity Test Specifications

(per 10 inch length) (60/40, IPA/water wetted membrane)

Pore Size	Bubble Point
0.1 $\mu\text{m}$	22 psig
0.22 $\mu\text{m}$	15 psig
0.45 $\mu\text{m}$	9 psig
1.0 $\mu\text{m}$	6 psig
3.0 $\mu\text{m}$	3 psig

## Quality Standards

Our goal is to ensure our customers the greatest possible value for their filtration dollar. Our equipment is highly automated, reducing hand operations that achieve both low cost manufacture and high quality by employing state of the art manufacturing equipment. This computer controlled compromise quality. Each operation including assembly, testing, cleaning, drying and packaging is done in appropriately rated clean rooms. Critical Process Filtration manages an ISO 9000 facility that produces validated products to rigorous standards. Manufacturing is controlled using sophisticated MRP software that is networked to work stations in manufacturing centers and inspection points. During the manufacturing and inspection processes, data is collected "real time" from machinery and measuring instruments. This allows variable and attribute data to be quickly and easily analyzed to facilitate constant improvements in both quality and cost.

## Total Performance

Critical Process Filtration, Inc.® is a vertically integrated supplier of filtration products and services to industries in which filtration is considered to be a critical part of the manufacturing process. We manufacture a complete line of products to help you achieve all your filtration requirements from a single source.



## Ordering Information

The cartridge catalog number is made up of several variable characters i.e. pore size, length, O-ring material, and end cap code. For example: a 0.1  $\mu\text{m}$ , 20 inch (50.8 cm) long cartridge with 2-222, Teflon® encapsulated Viton® O-rings, no spear (flat top) and no 316 SS Ring would be designated as: GTM\*10N00002T5.

<b>GTM</b>	□	□	<b>000</b>	□	□	□
<b>Pore size code</b>		<b>316 SS Ring</b>		<b>Cartridge Length</b>	<b>O-ring code</b>	<b>End cap code</b>
*10 = 0.10 $\mu\text{m}$ *20 = 0.22 $\mu\text{m}$ *40 = 0.45 $\mu\text{m}$ 1*0 = 1.0 $\mu\text{m}$ 3*0 = 3.0 $\mu\text{m}$		S = Ring N = No Ring		05 = 4.875 inches (12.4 cm) 97 = 9.75 inches (24.6 cm) 01 = 10 inches (25.4 cm) 19 = 19.5 inches (49.5 cm) 02 = 20 inches (50.8 cm) 29 = 29.25 inches (74.3 cm) 03 = 30 inches (76.2 cm) 04 = 40 inches (101.6 cm)	S = Silicone B = Buna V = Viton® T = Teflon® Encapsulated Viton® E = EP R = Teflon® Encapsulated Silicone	0 = Flat Gasket, DOE 1 = Flat Gasket / Plug 2 = 2-222 O-ring / Plug 3 = 213/119 Internal O-ring DOE 4 = 213/119 Internal O-ring / Plug 5 = 2-222 O-ring / Flat 6 = 2-226 O-ring / Flat 7 = 020 O-ring / Plug 8 = 2-222 O-ring / Spear 9 = 2-226 O-ring / Spear 21 = 2-223 O-ring / Flat 22 = 2-223 O-ring / Spear 23 = 2-222 O-ring 3 Tab / Flat 24 = 2-222 O-ring 3 Tab / Spear



## *GPM grade*

### *Polypropylene Membrane Media Filter Cartridges*

*engineered and manufactured for cost effective filtration*

Distributed by: John Mulhern Company    info@jmulhern.com  
 PO Box 6604, Santa Rosa, CA 95406  
 800 761-9201 707 578-5105 fx 707 578-8692

GPM grade Polypropylene Membrane cartridges are designed for general purpose use wherever a cost effective membrane filter is required. Designed to hold the maximum amount of filter media that can be completely and effectively utilized in a cartridge, GPM filters lower the cost of filtration. GPM cartridges are flushed with 17+ megohm-cm water to remove potential extraneous manufacturing debris. These cartridge modules are also individually tested. Priced below special purpose cartridges, GPM cartridges are still manufactured with the same careful attention to both quality and performance. Often used in place of Teflon® Membrane because of lower cost and no undesirable extractables

#### Construction Materials<sup>1</sup>

**Filtration Media:** ..... Polypropylene  
**Filtration Media Support:** ..... Polypropylene  
**End Caps:** ..... Polypropylene  
**Center Core:** ..... Polypropylene  
**Outer support Cage:** ..... Polypropylene  
**Sealing Method:** ..... Thermal Bonding  
**O-rings:** ..... Buna, Viton, EP, Silicone, Teflon®  
 Encapsulated Silicone, Teflon® Encapsulated Viton

<sup>1</sup>All materials of construction are FDA accepted. Final assemblies have been validated to pass USP class 6 Toxicology extractable tests, oxidizable substances for plastics, endotoxin level and other quality tests.

#### Maximum Operating Parameters

**Forward Differential Pressure:** ... 50 psi (3.4 bar) at 20°C.  
**Reverse Differential Pressure:** ..... 40 psi (2.7 bar) at 20°C.  
**Operating Temperature:**..... 180°F (82°C) at 10 psid (0.69 bar) in water.  
**Recommended Change Out Pressure:** ... 35 psid (2.4 bar)

#### Sanitization / Sterilization

**Filtered Hot Water:** ..... 194°F (90°C)  
**Chemical Sanitization :** ..... Industry standard concentrations of hydrogen peroxide, paracetic acid, sodium hypochlorite and other selected chemicals. Sanitization protocols designed to extend the useful life of GPM cartridges are available from Critical Process Filtration, Inc.®.



#### Applications

Filtration of:

- Etchants
- Tank Vents
- Solvents
- Acids & Bases
- Gases
- Compressed Air
- Chemicals
- Fermentation Air

#### Dimensions

**Length:** ..... 5 to 40 inches (12.7 to 101.6 cm) nominal  
**Outside Diameter:** ..... 2.75 inches (7.0 cm) nominal  
**Filtration Area:** ..... 7.0 ft<sup>2</sup> (0.65 m<sup>2</sup>) Per 10" length

#### Validation

GPM grade cartridges are validated using modified HIMA protocols

**Integrity Test Specifications** (per 10 inch length)  
 (water wetted membrane)

Pore Size	Air Diffusion Rate
<b>0.1 µm</b>	≤ 50 cc/min at 40 psi (2756 mbar)
<b>0.22 µm</b>	≤ 50 cc/min at 35 psi (2412 mbar)

## Flow Rate

The following table represents typical water flow at a one psi (69 mbar) pressure differential across a single 10 inch cartridge element. The test fluid is water at ambient temperature. Extrapolation for housings with multiple elements and higher pressure drops is acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Pore Size	0.1 $\mu\text{m}$	0.22 $\mu\text{m}$
GPM	0.75	2.75
SCFM	>22 SCFM/psid/10 inch cartridge length	>32 SCFM/psid/10 inch cartridge length
Gas Retention	0.01 $\mu\text{m}$	0.02 $\mu\text{m}$

## Quality Standards

Our goal is to ensure our customers the greatest possible value for their filtration dollar. We achieve both low cost manufacture and high quality by employing state of the art manufacturing equipment. This computer controlled equipment is highly automated, reducing hand operations that compromise quality. Each operation including assembly, testing, cleaning, drying and packaging is done in appropriately rated clean rooms. Critical Process Filtration manages an ISO 9000 facility that produces validated products to rigorous standards. Manufacturing is controlled using sophisticated MRP software that is networked to work stations in manufacturing centers and inspection points. During the manufacturing and inspection processes, data is collected "real time" from machinery and measuring instruments. This allows variable and attribute data to be quickly and easily analyzed to facilitate constant improvements in both quality and cost.

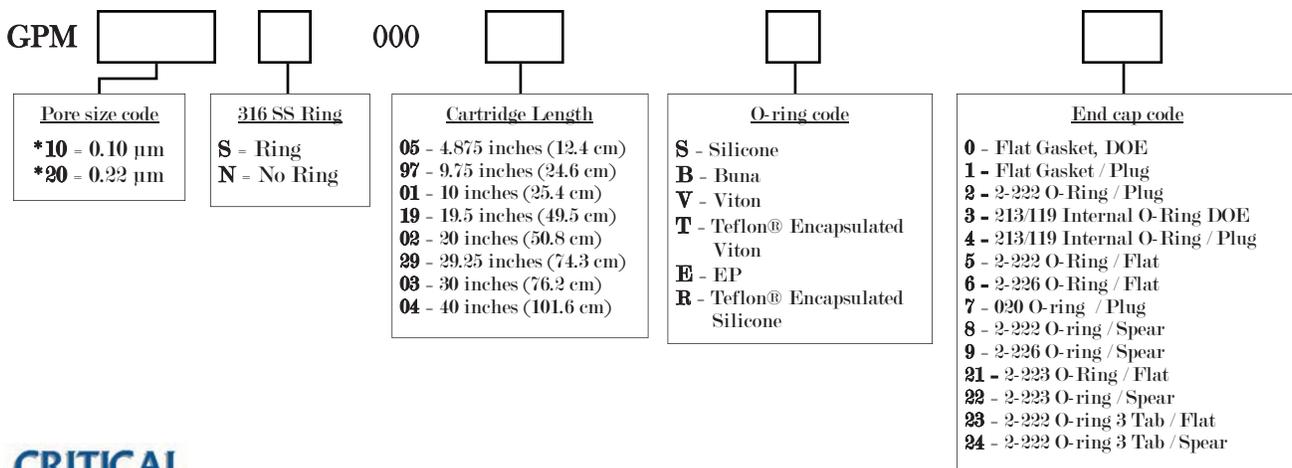
## Total Performance

Critical Process Filtration, Inc.® is a vertically integrated supplier of filtration products and services to industries in which filtration is considered to be a critical part of the manufacturing process. We manufacture a complete line of products to help you achieve all your filtration requirements from a single source.



## Ordering Information

The cartridge catalog number is made up of several variable characters i.e. pore size, length, O-ring material, and end cap code. For example: a 0.10  $\mu\text{m}$ , 20 inch (50.8 cm) long cartridge with 2-222, Teflon® Encapsulated Viton O-rings no spear (flat top) and no 316 SS Ring would be designated as: GPM\* 10N00002T5.





## *GPS grade*

### *Polyethersulfone Membrane Media Filter Cartridges*

*engineered and manufactured for cost effective filtration*

Distributed by: John Mulhern Company

800 761-9201

PO Box 6604 Santa Rosa, Ca 95406 fx 707 578-8692 info@jmulhern.com

GPS general grade Polyethersulfone cartridges are designed for general purpose use wherever a cost effective membrane filter is required. Designed to hold the maximum amount of filter media that can be completely and effectively utilized in a cartridge, GPS filters lower the cost of filtration. GPS cartridges are flushed with 17+ megohm-cm water to remove potential extraneous manufacturing debris. These cartridge modules are also individually tested. Priced below special purpose cartridges, GPS cartridges are still manufactured with the same careful attention to both quality and performance.

#### Construction Materials<sup>1</sup>

**Filtration Media:** ..... Polyethersulfone  
**Filtration Media Support:** ..... Polypropylene  
**End Caps:** ..... Polypropylene  
**Center Core:** ..... Polypropylene  
**Outer support Cage:** ..... Polypropylene  
**Sealing Method:** ..... Thermal Bonding  
**O-rings:** ..... Buna, Viton, EP, Silicone, Teflon®  
 Encapsulated Silicone, Teflon® Encapsulated Viton

<sup>1</sup>All materials of construction are FDA accepted. Final assemblies have been validated to pass USP class 6 Toxicology extractable tests, oxidizable substances for plastics, endotoxin level and other quality tests.

#### Maximum Operating Parameters

**Forward Differential Pressure:** ... 50 psi (3.4 bar) at 20°C.  
**Reverse Differential Pressure:** ..... 40 psi (2.7 bar) at 20°C.  
**Operating Temperature:**..... 180°F (82°C) at 10 psid (0.69 bar) in water.

**Recommended Change Out Pressure:** ... 35 psid (2.4 bar)

#### Dimensions

**Length:** ..... 5 to 40 inches (12.7 to 101.6 cm) nominal  
**Outside Diameter:** ..... 2.75 inches (7.0 cm) nominal  
**Filtration Area:** ..... 7.0 ft<sup>2</sup> (0.65 m<sup>2</sup>) Per 10" length

#### Sanitization / Sterilization

**Filtered Hot Water:** ..... 194°F (90°C)

**Chemical Sanitization :** ..... Industry standard concentrations of hydrogen peroxide, paracetic acid, sodium hypochlorite and other selected chemicals. Sanitization protocols designed to extend the useful life of GPS cartridges are available from Critical Process Filtration, Inc.®.



#### Applications

Filtration of:

- Process Water
- DI Water
- Inks & Dyes
- Acids & Bases
- Soft Drinks
- Bottled Water
- Chemicals
- Cosmetics

#### Validation

GPS grade cartridges are validated using modified HIMA protocols at a challenge level of 10<sup>4</sup> organisms per cm<sup>2</sup> of filter media. (0.22 µm challenged with Brevundimonas diminuta) (0.45 µm challenged with Serratia marcescens) (0.65 µm challenged with Saccharomyces)

#### Integrity Test Specifications (per 10 inch length)

Pore Size	Air Diffusion Rate
<b>0.03 µm</b>	≤ 55 cc/min at 60 psi (4137 mbar)
<b>0.1 µm</b>	≤ 55 cc/min at 48 psi (3307 mbar)
<b>0.22 µm</b>	≤ 55 cc/min at 35 psi (2412 mbar)
<b>0.45 µm</b>	≤ 55 cc/min at 20 psi (1378 mbar)
<b>0.65 µm</b>	≤ 55 cc/min at 15 psi (1044 mbar)
<b>0.8 µm</b>	≤ 55 cc/min at 12 psi (827 mbar)
<b>1.0 µm</b>	≤ 55 cc/min at 8 psi (552 mbar)
<b>1.2 µm</b>	≤ 55 cc/min at 7 psi (483 mbar)

## Flow Rate

The following table represents typical water flow at a one psi (69 mbar) pressure differential across a single 10 inch cartridge element. The test fluid is water at ambient temperature. Extrapolation for housings with multiple elements and higher pressure drops is acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Pore Size	0.03 µm	0.10 µm	0.22 µm	0.45 µm	0.65 µm	0.80 µm	1.0 µm	1.2 µm
GPM	1.5	2.5	4.5	7.0	8.3	9.0	9.5	9.8
LPM	5.67	9.46	17.03	26.49	31.41	34.06	35.96	37.09

## Quality Standards

Our goal is to ensure our customers the greatest possible value for their filtration dollar. We achieve both low cost manufacture and high quality by employing state of the art manufacturing equipment. This computer controlled equipment is highly automated, reducing hand operations that compromise quality. Each operation including assembly, testing, cleaning, drying and packaging is done in appropriately rated clean rooms. Critical Process Filtration manages an ISO 9000 facility that produces validated products to rigorous standards. Manufacturing is controlled using sophisticated MRP software that is networked to work stations in manufacturing centers and inspection points. During the manufacturing and inspection processes, data is collected "real time" from machinery and measuring instruments. This allows variable and attribute data to be quickly and easily analyzed to facilitate constant improvements in both quality and cost.

## Total Performance

Critical Process Filtration, Inc.® is a vertically integrated supplier of filtration products and services to industries in which filtration is considered to be a critical part of the manufacturing process. We manufacture a complete line of products to help you achieve all your filtration requirements from a single source.



## Ordering Information

The cartridge catalog number is made up of several variable characters i.e. pore size, length, O-ring material, and end cap code. For example: a 0.10 µm, 20 inch (50.8 cm) long cartridge with 2-222, Teflon® Encapsulated Viton O-rings no spear (flat top) and no 316 SS Ring would be designated as: GPS\*10N00002T5.

GPS		0000			
<b>Pore size code</b>	<b>316 SS Ring</b>	<b>Cartridge Length</b>	<b>O-ring code</b>	<b>End cap code</b>	
*03 = 0.03 µm *10 = 0.10 µm *20 = 0.22 µm *40 = 0.45 µm *60 = 0.65 µm *80 = 0.80 µm 1*0 = 1.0 µm 1*2 = 1.2 µm	S = SS Ring N = No Ring	5 = 5 inches (12.7 cm) 1 = 10 inches (25.4 cm) 2 = 20 inches (50.8 cm) 3 = 30 inches (76.2 cm) 4 = 40 inches (101.6 cm)	S - Silicone B - Buna V - Viton T - Teflon® Encapsulated Viton E - EP R - Teflon® Encapsulated Silicone	0 - Flat Gasket, double open end 1 - Flat Gasket w/Plug 2 - 2-222 w/ Plug 3 - 213/119 Both Ends 4 - 213/119 w/ Plug 5 - 2-222 O-Ring / Flat 6 - 2-226 O-Ring / Flat 7 - 020 O-ring 8 - 2-222 O-ring with Spear 9 - 2-226 O-ring with Spear	
<b>Note:</b> For additional cap codes, see selection guide data sheet. CCDS0107					





## DPS grade

*Dual Layered Polyethersulfone Membrane Media Filter Cartridges  
Engineered and Manufactured for cost Effective Filtration*

Distributed by:

John Mulhern Company  
Santa Rosa, Ca

800. 761-9201 707. 578.5105  
info@jmulhern.com

**DPS** general grade dual layered Polyethersulfone cartridges are custom configured to increase the surface area and give maximum throughputs for general purpose use wherever a cost effective membrane filter is required. DPS cartridges require fewer change outs and are configured for maximum solids holding at the rated pore size thus lowering the cost of filtration. DPS cartridges are flushed with 17+ megohm-cm water to remove potential extraneous manufacturing debris. These cartridge modules are also individually tested. Priced below special purpose cartridges, DPS cartridges are still manufactured with the same careful attention to both quality and performance.

### Construction Materials <sup>1</sup>

**Filtration Media:** ..... Polyethersulfone  
**Prefiltration Media:** ..... Polyethersulfone  
**Filtration Media Support:** ..... Polypropylene  
**End Caps:** ..... Polypropylene  
**Center Core:** ..... Polypropylene  
**Outer Support Cage:** ..... Polypropylene  
**Sealing Method:** ..... Thermal Bonding  
**O rings:** ..... Buna, Viton®, EP, Silicone, Teflon®  
 Encapsulated Silicone, Teflon® Encapsulated Viton®

<sup>1</sup>All materials of construction are FDA accepted. Final assemblies have been validated to pass USP class 6 Toxicology extractable tests, oxidizable substances for plastics, endotoxin in level and other quality tests.

### Maximum Operating Parameters

**Forward Differential Pressure:** ..... 50 psi (3.4 bar) at 20°C.  
**Reverse Differential Pressure:** ..... 40 psi (2.7 bar) at 20°C.  
**Operating Temperature:** ..... 180°F (82°C) at 10 psid (0.69 bar) in water.

### Sanitization / Sterilization

**Filtered Hot Water:** ..... 194°F (90°C)  
**Autoclave:** ..... 260°F (127°C), 30 min, multiple cycles  
**In line Steam:** ..... 275°F (135°C), 30 min, multiple cycles  
**Chemical Sanitization:** ..... Industry standard concentrations of hydrogen peroxide, paracetic acid, sodium hypochlorite and other selected chemicals. Sanitization protocols designed to extend the useful life of DPS cartridges are available from Critical Process Filtration, Inc.

### Validation

DPS grade cartridges are validated using modified HIMA protocols at a challenge level of 10<sup>4</sup> organisms per cm<sup>2</sup> of filter media. (0.22 µm challenged with *Brevundimonas diminuta*) (0.45 µm challenged with *Serratia marscecens*) (0.65 µm challenged with *Saccharomyces cerevisiae*).



### Applications

#### Final Filtration of:

- Process Water
- DI Water
- Inks & Dyes
- Acids & Bases
- Soft Drinks
- Bottled Water
- Chemicals
- Cosmetics

### Dimensions

**Length:** ..... 5 to 40 inches (12.7 to 101.6 cm) nominal

**Outside Diameter:** ..... 2.75 inches (7.0 cm) nominal

**Filtration Area:** ..... 9.1 ft<sup>2</sup> (0.85 m<sup>2</sup>) Per 10" length

### Integrity Test Specifications

(per 10-inch length) (water wetted membrane)

Pore Size	Air Diffusion Rate
<b>0.03 µm</b>	≤ 64 cc/min at 60 psi (4137 mbar)
<b>0.10 µm</b>	≤ 64 cc/min at 48 psi (3307 mbar)
<b>0.22 µm</b>	≤ 64 cc/min at 35 psi (2412 mbar)
<b>0.45 µm</b>	≤ 64 cc/min at 20 psi (1378 mbar)
<b>0.65 µm</b>	≤ 64 cc/min at 15 psi (1044 mbar)
<b>0.80 µm</b>	≤ 64 cc/min at 12 psi (827 mbar)
<b>1.0 µm</b>	≤ 64 cc/min at 8 psi (552 mbar)
<b>1.2 µm</b>	≤ 64 cc/min at 7 psi (483 mbar)

## Flow Rate

The following table represents typical water flow at a one psi (69 mbar) pressure differential across a single 10-inch cartridge element. The test fluid is water at ambient temperature. Extrapolation for housings with multiple elements and higher pressure drops is acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Pore Size	0.03 $\mu\text{m}$	0.10 $\mu\text{m}$	0.22 $\mu\text{m}$	0.45 $\mu\text{m}$	0.65 $\mu\text{m}$	0.80 $\mu\text{m}$	1.0 $\mu\text{m}$	1.2 $\mu\text{m}$
GPM	1.5	2.5	4.5	7.0	8.3	9.0	9.5	9.8
LPM	5.67	9.46	17.03	26.49	31.41	34.06	35.96	37.09

## Quality Standards

Our goal is to ensure our customers the greatest possible value for their filtration dollar. We achieve both low cost manufacture and high quality by employing state of the art manufacturing equipment. This computer-controlled equipment is highly automated, reducing hand operations that compromise quality. Each operation, including assembly, testing, cleaning, drying and packaging, is done in appropriately rated clean rooms. Critical Process Filtration manages an ISO 9000 facility that produces validated products to rigorous standards. Manufacturing is controlled using sophisticated MRP software that is networked to work stations in manufacturing centers and inspection points. During the manufacturing and inspection processes, data is collected "real time" from machinery and measuring instruments. This allows variable and attribute data to be quickly and easily analyzed to facilitate constant improvements in both quality and cost.

## Total Performance

Critical Process Filtration, Inc. is a vertically integrated supplier of filtration products and services to industries in which filtration is considered to be a critical part of the manufacturing process. We manufacture a complete line of products to help you achieve all your filtration requirements from a single source.



## Ordering Information

The cartridge catalog number is made up of several variable characters i.e. pore size, length, O-ring material, and end cap code. For example: a 0.45  $\mu\text{m}$ , 20 inch (50.8 cm) long cartridge with 2-222, Silicone O-rings, no spear (flat top) and no 316 SS Ring would be designated as: DPS\*40N00002S5.

**DPS**

### Pore size code

\*03 = 0.03  $\mu\text{m}$   
 \*10 = 0.10  $\mu\text{m}$   
 \*20 = 0.22  $\mu\text{m}$   
 \*40 = 0.45  $\mu\text{m}$   
 \*60 = 0.65  $\mu\text{m}$   
 \*80 = 0.80  $\mu\text{m}$   
 1\*0 = 1.0  $\mu\text{m}$   
 1\*2 = 1.2  $\mu\text{m}$

### 316 SS Ring

S = Ring  
 N = No Ring

**0 JM**

### Cartridge Length

05 = 4.875 inches (12.4 cm)  
 97 = 9.75 inches (24.6 cm)  
 01 = 10 inches (25.4 cm)  
 19 = 19.5 inches (49.5 cm)  
 02 = 20 inches (50.8 cm)  
 29 = 29.25 inches (74.3 cm)  
 03 = 30 inches (76.2 cm)  
 04 = 40 inches (101.6 cm)

### O ring code

S = Silicone  
 B = Buna  
 V = Viton®  
 T = Teflon® Encapsulated Viton®  
 E = EP  
 R = Teflon® Encapsulated Silicone

### End cap code

0 = Flat Gasket, DOE  
 1 = Flat Gasket / Plug  
 2 = 2-222 O-ring / Plug  
 3 = 213/119 Internal O-ring DOE  
 4 = 213/119 Internal O-ring / Plug  
 5 = 2-222 O-ring / Flat  
 6 = 2-226 O-ring / Flat  
 7 = 020 O-ring / Plug  
 8 = 2-222 O-ring / Spear  
 9 = 2-226 O-ring / Spear  
 21 = 2-223 O-ring / Flat  
 22 = 2-223 O-ring / Spear  
 23 = 2-222 O-ring 3 Tab / Flat  
 24 = 2-222 O-ring 3 Tab / Spear





## GNM grade

### Nylon Membrane Media Filter Cartridges Engineered and Manufactured for Cost Effective Filtration

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PO Box 6604, Santa Rosa, CA 95406  
(800) 761-9201 (707) 578-5105 info@jmulhern.com

**GNM** grade Nylon Media cartridges are designed for general purpose use wherever a cost effective pleated membrane filter is required. Designed to hold the maximum amount of filter media that can be completely and effectively utilized in a cartridge, GNM filters lower the cost of filtration. GNM cartridges are flushed with 17+ megohm-cm water to remove potential extraneous manufacturing debris. These cartridge modules are also individually tested. Priced below special purpose cartridges, GNM cartridges are still manufactured with the same careful attention to both quality and performance.

### Construction Materials <sup>1</sup>

**Filtration Media:** ..... Nylon  
**Filtration Media Support:** ..... Polypropylene  
**End Caps:** ..... Polypropylene  
**Center Core:** ..... Polypropylene  
**Outer Support Cage:** ..... Polypropylene  
**Sealing Method:** ..... Thermal Bonding  
**O rings:** ..... Buna, Viton®, EP, Silicone, Teflon®  
 Encapsulated Silicone, Teflon® Encapsulated Viton®

<sup>1</sup>All materials of construction are FDA accepted. Final assemblies have been validated to pass USP class 6 Toxicology extractable tests, oxidizable substances for plastics, endotoxin level and other quality tests.

### Maximum Operating Parameters

**Forward Differential Pressure:** ..... 50 psi (3.4 bar) at 20°C.  
**Reverse Differential Pressure:** ..... 40 psi (2.7 bar) at 20°C.  
**Operating Temperature:** ..... 180°F (82°C) at 10 psid (0.69 bar) in water.  
**Recommended Change Out Pressure:** ..... 35 psid (2.4 bar)

### Dimensions

**Length:** ..... 5 to 40 inches (12.7 to 101.6 cm) nominal  
**Outside Diameter:** ..... 2.75 inches (7.0 cm) nominal  
**Filtration Area:** ..... 7.2 ft<sup>2</sup> (0.67 m<sup>2</sup>) Per 10" length

### Validation

GNM grade cartridges are validated using modified HIMA protocols at a challenge level of 10<sup>4</sup> organisms per cm<sup>2</sup> of filter media. (0.22 µm challenged with *Brevundimonas diminuta*) (0.45 µm challenged with *Serratia marcescens*) (0.65 µm challenged with *Saccharomyces cerevisiae*).



### Applications

#### Filtration of:

- Process Water
- DI Water
- Chemicals
- Beverages
- Bottled Water
- Solvents

### Sanitization / Sterilization

**Filtered Hot Water:** ..... 194°F (90°C)  
**Autoclave:** ..... 260°F (127°C), 30 min, multiple cycles  
**In line Steam:** ..... 275°F (135°C), 30 min, multiple cycles  
**Chemical Sanitization:** ..... Nylon does not tolerate heavy concentrations of common sanitization agents. Consult Critical Process filtration to determine if your chemical sanitization protocol can be used with these cartridges. Or for a protocol that meets your needs and is compatible with these cartridges.

### Integrity Test Information (per 10 inch length) (water wetted membrane)

Pore Size	Air Diffusion Rate
<b>0.03 µm</b>	≤ 55 cc/min at 60 psi (4137 mbar)
<b>0.10 µm</b>	≤ 55 cc/min at 48 psi (3307 mbar)
<b>0.22 µm</b>	≤ 55 cc/min at 35 psi (2412 mbar)
<b>0.45 µm</b>	≤ 55 cc/min at 20 psi (1378 mbar)
<b>0.65 µm</b>	≤ 55 cc/min at 15 psi (1034 mbar)

## Flow Rate

The following table represents typical water flow at a one psi (69 mbar) pressure differential across a single 10 inch cartridge element. The test fluid is water at ambient temperature. Extrapolation for housings with multiple elements and higher pressure drops is acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Pore Size	0.03 $\mu\text{m}$	0.10 $\mu\text{m}$	0.22 $\mu\text{m}$	0.45 $\mu\text{m}$	0.65 $\mu\text{m}$
<b>GPM</b>	0.75	1.0	1.25	3.0	5.5
<b>LPM</b>	2.84	3.79	4.73	11.36	20.82

## Quality Standards

Our goal is to ensure our customers the greatest possible value for their filtration dollar. We achieve both low cost manufacture and high quality by employing state of the art manufacturing equipment. This computer controlled equipment is highly automated, reducing hand operations that compromise quality. Each operation including assembly, testing, cleaning, drying and packaging is done in appropriately rated clean rooms. Critical Process Filtration manages an ISO 9000 facility that produces validated products to rigorous standards. Manufacturing is controlled using sophisticated MRP software that is networked to work stations in manufacturing centers and inspection points. During the manufacturing and inspection processes, data is collected "real time" from machinery and measuring instruments. This allows variable and attribute data to be quickly and easily analyzed to facilitate constant improvements in both quality and cost. and measuring instruments. This allows variable and attribute data to be quickly and easily analyzed to facilitate constant improvements in both quality and cost.

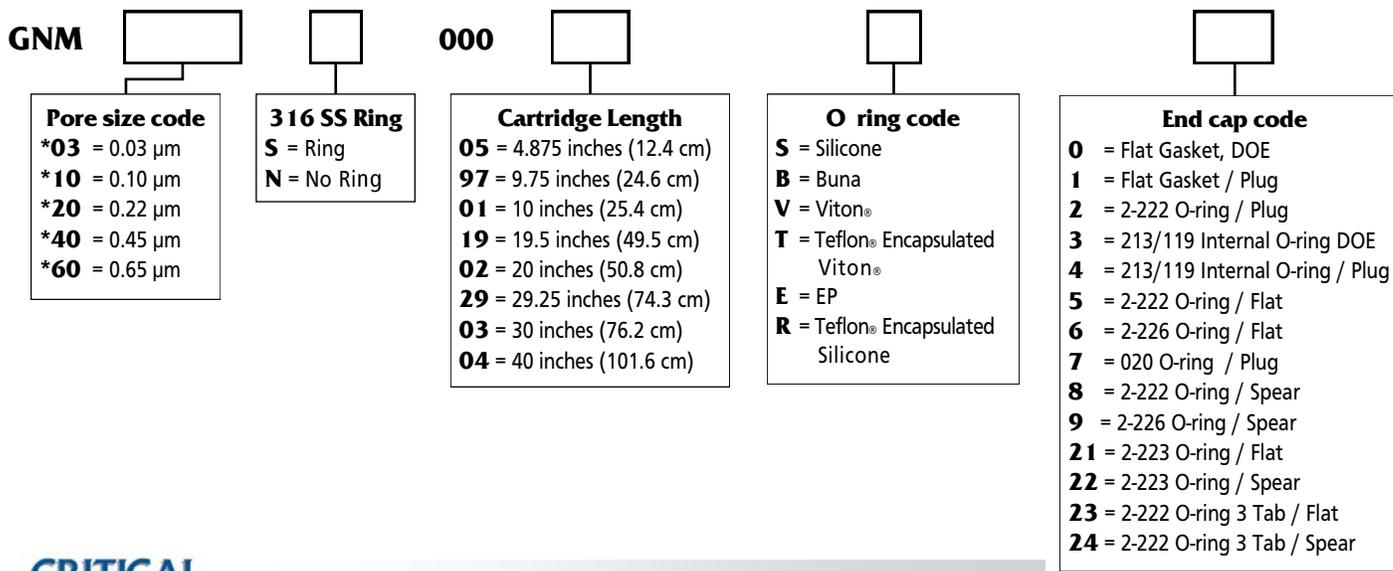
## Total Performance

Critical Process Filtration, Inc. is a vertically integrated supplier of filtration products and services to industries in which filtration is considered to be a critical part of the manufacturing process. We manufacture a complete line of products to help you achieve all your filtration requirements from a single source.



## Ordering Information

The cartridge catalog number is made up of several variable characters i.e. pore size, length, O-ring material, and end cap code. For example: a 0.10  $\mu\text{m}$ , 20 inch (50.8 cm) long cartridge with 2-222, Teflon® Encapsulated Viton O-rings no spear (flat top) and no 316 SS Ring would be designated as: GNM\*10N00002T5.





## *GGD grade*

### *Fiber Glass Depth Media Filter Cartridges*

*Engineered and manufactured for maximum efficiency and value*

Distributed by: John Mulhern Company      info@jmulhern.com  
PO Box 6604, Santa Rosa, Ca 95403      707 578-5105

GGD grade Fiber Glass Depth cartridges are designed for general purpose use wherever a cost effective pleated Fiber Glass Depth filter is required. 99% retention at the rated pore size and designed to hold the maximum amount of filter media that can be completely and effectively utilized in a cartridge, GGD filters lower the cost of filtration. GGD cartridges are flushed with 17+ megohm-cm water to remove potential extraneous manufacturing debris. These cartridge modules are also individually tested. Priced below special purpose cartridges, GGD cartridges are still manufactured with the same careful attention to both quality and performance.

#### Construction Materials<sup>1</sup>

**Filtration Media:** ..... Fiber Glass  
**Filtration Media Support:** ..... Polypropylene  
**End Caps:** ..... Polypropylene  
**Center Core:** ..... Polypropylene  
**Outer support Cage:** ..... Polypropylene  
**Sealing Method:** ..... Thermal Bonding  
**O-rings:** ..... Buna, Viton, EP, Silicone, Teflon®  
 Encapsulated Silicone, Teflon® Encapsulated Viton

<sup>1</sup>All materials of construction are FDA accepted. Final assemblies have been validated to pass USP class 6 Toxicology extractable tests, oxidizable substances for plastics, endotoxin level and other quality tests.

#### Maximum Operating Parameters

**Forward Differential Pressure:** ... 50 psi (3.4 bar) at 20°C.  
**Reverse Differential Pressure:** ..... 40 psi (2.7 bar) at 20°C.  
**Operating Temperature:**..... 180°F (82°C) at 10 psid (0.69 bar) in water.  
**Recommended Change Out Pressure:** ... 35 psid (2.4 bar)

#### Dimensions

**Length:** ..... 5 to 40 inches (12.7 to 101.6 cm) nominal  
**Outside Diameter:** ..... 2.75 inches (7.0 cm) nominal  
**Filtration Area:** ..... Up to 6.8 ft<sup>2</sup> (0.63 m<sup>2</sup>) Per 10" length

#### Flow Rate

The following table represents typical water flow at a one psi (69 mbar) pressure differential across a single 10 inch cartridge element. The test fluid is water at ambient temperature. Extrapolation for housings with multiple elements and higher pressure drops is acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Pore	0.22 µm	0.30 µm	0.45 µm	0.65 µm	1.0 µm	2.0 µm	3.0 µm	5.0 µm	10 µm	20 µm	30 µm
GPM	2.6	3.0	5.0	6.0	8.0	10	12	14	> 15	>15	>15
LPM	9.84	11.35	18.92	22.71	30.28	37.85	45.42	52.99	>56.78	>56.78	>56.78



#### Applications

Filtration of:

- Wine Clarification
- Beverage Clarification
- Cosmetics
- Syrups
- Soft Drinks
- Bottled Water
- Process Water
- Air

#### Sanitization / Sterilization

**Filtered Hot Water:** ..... 194°F (90°C)  
**Autoclave:** ..... 260°F (127°C), 30 min, multiple cycles  
**In-line Steam:** ..... 275°F (135°C), 30 min, multiple cycles

**Chemical Sanitization :** ..... Industry standard concentrations of hydrogen peroxide, paracetic acid, sodium hypochlorite and other selected chemicals. Sanitization protocols designed to extend the useful life of GGD cartridges are available from Critical Process Filtration, Inc.®.

### Integrity Test Information

Cartridges are factory tested for integrity before shipment. Field Duplication of these tests is not practical because of the complexity of the testing process and absence of commercial portable testing equipment.

### Quality Standards

Our goal is to ensure our customers the greatest possible value for their filtration dollar. We achieve both low cost manufacture and high quality by employing state of the art manufacturing equipment. This computer controlled equipment is highly automated, reducing hand operations that compromise quality. Each operation including assembly, testing, cleaning, drying and packaging is done in appropriately rated clean rooms. Critical Process Filtration manages an ISO 9000 facility that produces validated products to rigorous standards. Manufacturing is controlled using sophisticated MRP software that is networked to work stations in manufacturing centers and inspection points. During the manufacturing and inspection processes, data is collected "real time" from machinery and measuring instruments. This allows variable and attribute data to be quickly and easily analyzed to facilitate constant improvements in both quality and cost.

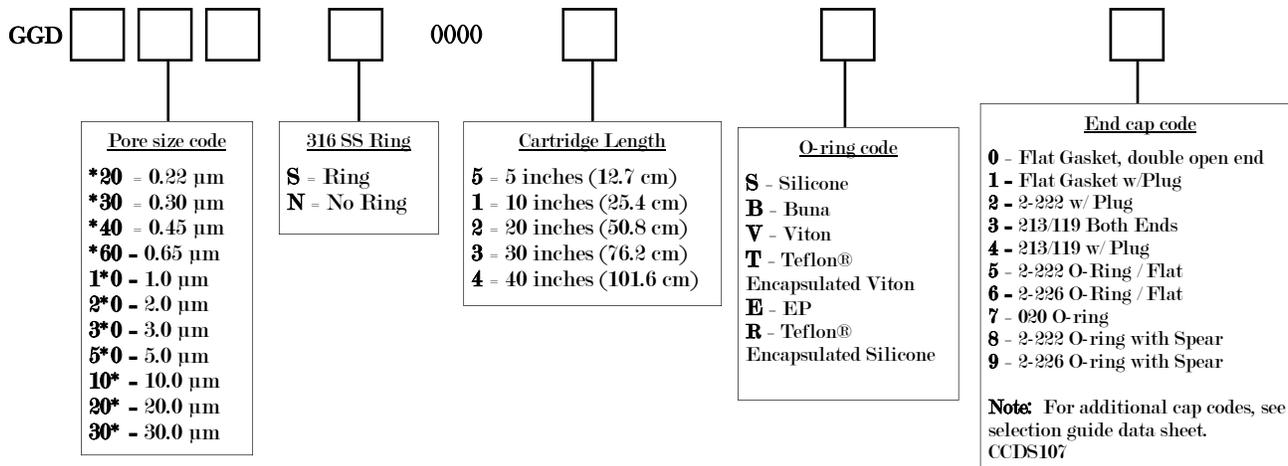
### Total Performance

Critical Process Filtration, Inc.® is a vertically integrated supplier of filtration products and services to industries in which filtration is considered to be a critical part of the manufacturing process. We manufacture a complete line of products to help you achieve all your filtration requirements from a single source.



### Ordering Information

The cartridge catalog number is made up of several variable characters i.e. pore size, length, O-ring material, and end cap code. For example: a 1.0 µm, 20 inch (50.8 cm) long cartridge with 2-222, Teflon® Encapsulated Viton O-rings, no spear (flat top) and no 316 SS Ring would be designated as: GGD1\*0N00002T5.





## *GPD grade*

### *Polypropylene Depth Media Filter Cartridges*

*Engineered and manufactured for maximum efficiency and value*

Distributed By:  
John Mulhern Company    Santa Rosa, Ca    (707) 578-5105    (800) 761-9201

GPD grade Polypropylene cartridges are designed for general purpose use wherever a cost effective pleated depth filter is required. Rated at 99.9% efficiencies at the rated pore size and designed to hold the maximum amount of filter media that can be completely and effectively utilized in a cartridge, GPD filters lower the cost of filtration. GPD cartridges are flushed with 17+ megohm-cm water to remove potential extraneous manufacturing debris. These cartridge modules are also individually tested. Priced below special purpose cartridges, GPD cartridges are still manufactured with the same careful attention to both quality and performance.

#### Construction Materials<sup>1</sup>

**Filtration Media:** ..... Polypropylene  
**Filtration Media Support:** ..... Polypropylene  
**End Caps:** ..... Polypropylene  
**Center Core:** ..... Polypropylene  
**Outer support Cage:** ..... Polypropylene  
**Sealing Method:** ..... Thermal Bonding  
**O-rings:** ..... Buna, Viton, EP, Silicone, Teflon®  
 Encapsulated Silicone, Teflon® Encapsulated Viton

<sup>1</sup>All materials of construction are FDA accepted. Final assemblies have been validated to pass USP class 6 Toxicology extractable tests, oxidizable substances for plastics, endotoxin level and other quality tests.

#### Maximum Operating Parameters

**Forward Differential Pressure:** ... 50 psi (3.4 bar) at 20°C.  
**Reverse Differential Pressure:** ..... 40 psi (2.7 bar) at 20°C.  
**Operating Temperature:**..... 180°F (82°C) at 10 psid (0.69 bar) in water.  
**Recommended Change Out Pressure:** ... 35 psid (2.4 bar)

#### Dimensions

**Length:** ..... 5 to 40 inches (12.7 to 101.6 cm) nominal  
**Outside Diameter:** ..... 2.75 inches (7.0 cm) nominal  
**Filtration Area:** ..... Up to 7.2 ft<sup>2</sup> (0.67 m<sup>2</sup>) Per 10" length

#### Flow Rate

The following table represents typical water flow at a one psi (69 mbar) pressure differential across a single 10 inch cartridge element. The test fluid is water at ambient temperature. Extrapolation for housings with multiple elements and higher pressure drops is acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Pore	0.10	0.22	0.45	0.65	1.0 µm	3.0 µm	5.0 µm	10 µm	20 µm	30 µm	40 µm	60 µm	100 µm
GPM	1.0	3.0	5.0	6.0	8.0	12	16	18	>20	>20	>20	>20	>20
LPM	3.79	11.35	18.92	22.71	30.28	45.42	60.56	68.13	>75.70	>75.70	>75.70	>75.70	>75.70



#### Applications

Filtration of:

- Wine Clarification
- Beverage Clarification
- Cosmetics
- Chemicals
- Soft Drinks
- Bottled Water
- Process Water
- Air & Gases

#### Sanitization / Sterilization

**Filtered Hot Water:** ..... 194°F (90°C)  
**Autoclave:** ..... 260°F (127°C), 30 min, multiple cycles  
**In-line Steam:** ..... 275°F (135°C), 30 min, multiple cycles

**Chemical Sanitization :** ..... Industry standard concentrations of hydrogen peroxide, paracetic acid, sodium hypochlorite and other selected chemicals. Sanitization protocols designed to extend the useful life of GPD cartridges are available from Critical Process Filtration, Inc.®.

### Integrity Test Information

Cartridges are factory tested for integrity before shipment. Field Duplication of these tests is not practical because of the complexity of the testing process and absence of commercial portable testing equipment.

### Quality Standards

Our goal is to ensure our customers the greatest possible value for their filtration dollar. We achieve both low cost manufacture and high quality by employing state of the art manufacturing equipment. This computer controlled equipment is highly automated, reducing hand operations that compromise quality. Each operation including assembly, testing, cleaning, drying and packaging is done in appropriately rated clean rooms. Critical Process Filtration manages an ISO 9000 facility that produces validated products to rigorous standards. Manufacturing is controlled using sophisticated MRP software that is networked to work stations in manufacturing centers and inspection points. During the manufacturing and inspection processes, data is collected "real time" from machinery and measuring instruments. This allows variable and attribute data to be quickly and easily analyzed to facilitate constant improvements in both quality and cost.

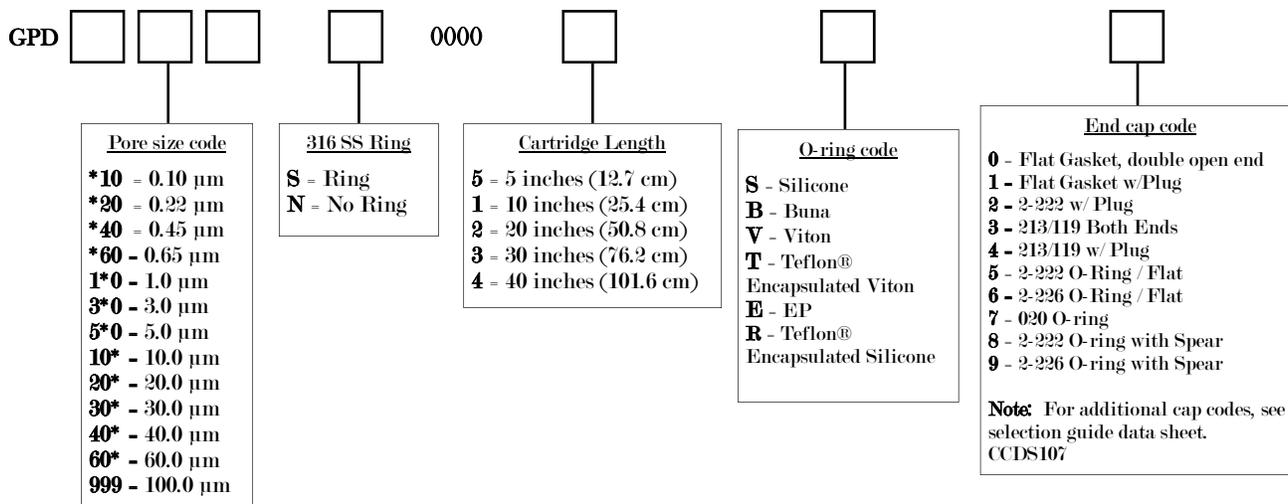
### Total Performance

Critical Process Filtration, Inc.® is a vertically integrated supplier of filtration products and services to industries in which filtration is considered to be a critical part of the manufacturing process. We manufacture a complete line of products to help you achieve all your filtration requirements from a single source.



### Ordering Information

The cartridge catalog number is made up of several variable characters i.e. pore size, length, O-ring material, and end cap code. For example: a 0.1 µm, 20 inch (50.8 cm) long cartridge with 2-222, Teflon® Encapsulated Viton O-rings, no spear (flat top) and no 316 SS Ring would be designated as: GPD\* 10N00002T5.



Distributed By:  
John Mulhern Company  
PO Box 6604  
Santa Rosa, Ca 95406

(800) 761-9201 (707) 578-5105  
Fax (707) 578-8692  
info@jmulhern.com www.jmulhern.com



# *WPS grade*

## *Polyethersulfone Membrane Media Filter Cartridges*

*engineered and manufactured for cost effective filtration*

Distributed by: John Mulhern Company      Santa Rosa, Ca  
 800 761-9201    707 578-5105    fax 707 578-8692    email: info@jmulhern.com

WPS water grade Polyethersulfone cartridges are designed for general water purpose use, wherever a cost effective membrane filter is required. WPS cartridges are flushed with 17+ megohm-cm water to remove potential extraneous manufacturing debris. Priced below general purpose cartridges, WPS cartridges are still manufactured with the same careful attention to both quality and performance.

**Construction Materials** <sup>1</sup>

**Filtration Media:** ..... Polyethersulfone  
**Filtration Media Support:** ..... Polypropylene  
**End Caps:** ..... Polypropylene  
**Center Core:** ..... Polypropylene  
**Outer support Cage:** ..... Polypropylene  
**O-rings:** Buna, Viton, EP, Silicone, Teflon® Encapsulated Silicone, Teflon® Encapsulated Viton

<sup>1</sup> All materials of construction are FDA accepted. Final assemblies have been validated to pass USP class 6 Toxicology extractable tests, oxidizable substances for plastics, endotoxin level and other quality tests.

**Membrane Bubble Point**  
 (water wetted membrane)

Pore Size	Bubble Point
<b>0.1 µm</b>	60 Psi (4137 mbar)
<b>0.22 µm</b>	44 Psi (3034 mbar)
<b>0.45 µm</b>	25 Psi (1724 mbar)

**Dimensions**

**Length:** ..... 10 to 40 inches (25.4 to 101.6 cm) nominal  
**Outside Diameter:** ..... 2.75 inches (7.0 cm) nominal  
**Filtration Area:** ..... 5.5 ft<sup>2</sup> (0.51 m<sup>2</sup>) Per 10" length

**Ordering Information**

The cartridge catalog number is made up of several variable characters i.e. pore size, length, O-ring material, and end cap code. For example: a 0.10 µm, 20 inch (50.8 cm) long cartridge with 2-222, Silicone O-rings, no spear (flat top) and no 316 SS Ring would be designated as: WPS\*10N00002S5.



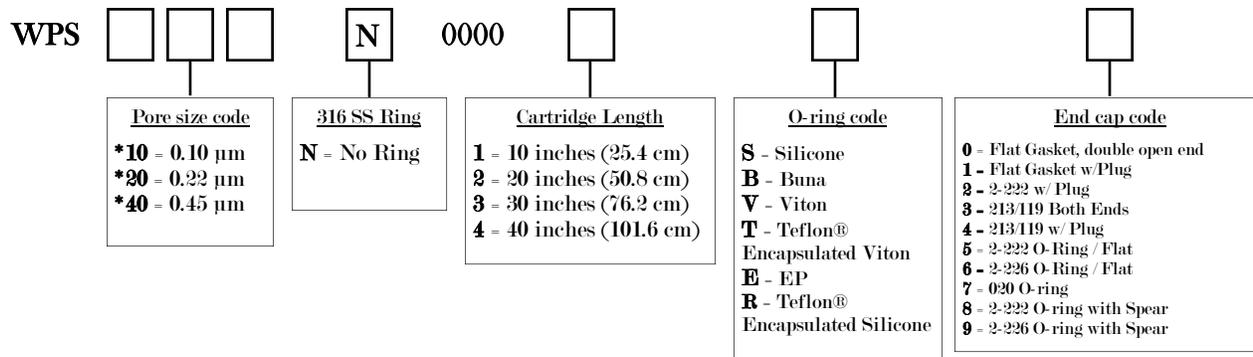
**Flow Rate**

The following table represents typical water flow at a one psi (69 mbar) pressure differential across a single 10 inch cartridge element. The test fluid is water at ambient temperature. Extrapolation for housings with multiple elements and higher pressure drops is acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Pore Size	0.10 µm	0.22 µm	0.45 µm
<b>GPM</b>	2.0	3.5	6.0
<b>LPM</b>	7.57	13.24	22.71

**Maximum Operating Parameters**

**Forward Differential Pressure:** .. 50 psi (3.4 bar) at 20°C.  
**Reverse Differential Pressure:** .... 40 psi (2.7 bar) at 20°C.  
**Maximum Operating Temperature:**.... 180°F (82°C) at 10 psid (0.69 bar) in water.  
**Recommended Change Out** ..... 30 psid (2.07 bar)



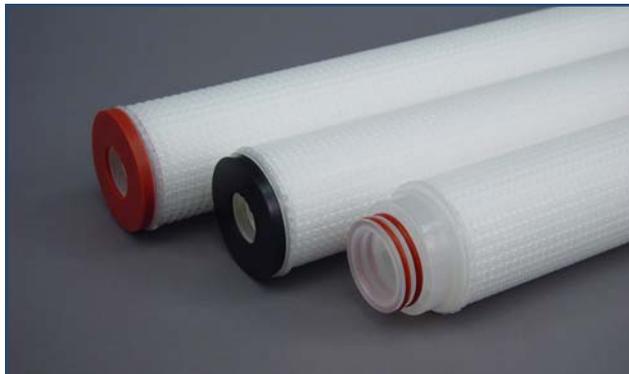


# CPD grade

*Commercial Polypropylene Depth Media Filter Cartridges  
Engineered and manufactured for maximum efficiency and value*

Distributed by: John Mulhern Company  
PO Box 6604, Santa Rosa, Ca 95406  
800 761-9201 707 578-5105 fax 707 578-8692 info@jmulhern.com

CPD pleated polypropylene depth cartridges are designed for clarifying applications requiring high flow capacity. The depth media utilized in the CPD product line is high loft Melt-blown polypropylene which gives exceptional flow characteristics and high dirt holding capacity because of its high internal porosity. Fine polypropylene fibers are bonded together to ensure no fiber release in a fiber matrix that maintains high porosity. Rated at 99.9% efficiencies make it a cost effective filter designed to extend final filter life.



### Construction Materials <sup>1</sup>

**Filtration Media:** ..... Polypropylene  
**Filtration Media Support:** ..... Polypropylene  
**End Caps:** ..... Polypropylene  
**Center Core:** ..... Polypropylene  
**Outer support Cage:** ..... Polypropylene  
**Sealing Method:** ..... Thermal Bonding  
**O-rings:** ..... Buna, Viton, EP, Silicone, Teflon® Encapsulated Silicone, Teflon® Encapsulated Viton

<sup>1</sup>All materials of construction are FDA accepted.

### Maximum Operating Parameters

**Forward Differential Pressure:** ... 50 psi (3.4 bar) at 20°C.  
**Reverse Differential Pressure:** ..... 20 psi (1.4 bar) at 20°C.  
**Operating Temperature:** ..... 175°F (80°C) at 10 psid (0.69 bar) in water.  
**Recommended Change Out Pressure:** .. 30 psid (2.07 bar)

### Dimensions

**Length:** ..... 10 to 40 inches (25.4 to 101.6 cm) nominal  
**Outside Diameter:** ..... 2.50 inches (6.35 cm) nominal  
**Filtration Area:** ..... 5.5 ft<sup>2</sup> (0.51 m<sup>2</sup>) Per 10" length

### Flow Rate

The following table represents typical water flow at a one psi (69 mbar) pressure differential across a single 10 inch cartridge element. The test fluid is water at ambient temperature. Extrapolation for housings with multiple elements and higher pressure drops is acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Pore	0.10	0.22	0.45	0.65	1.0 µm	3.0 µm	5.0 µm	10 µm	20 µm	30 µm	40 µm	60 µm	100 µm
GPM	1.0	3.0	5.0	6.0	8.0	12	16	18	>20	>20	>20	>20	>20
LPM	3.79	11.35	18.92	22.71	30.28	45.42	60.56	68.13	>75.70	>75.70	>75.70	>75.70	>75.70

### Ordering Information

The cartridge catalog number is made up of several variable characters i.e. pore size, length, O-ring material, and end cap code. For example: a 0.1 µm, 20 inch (50.8 cm) long cartridge with 2-222, Teflon® Encapsulated Viton O-rings, no spear (flat top) would be designated as: CPD\*10N00002T5.

CPD     N 0000

<p><b>Pore size code</b></p> <p>*10 - 0.10 µm                  *20 - 0.22 µm                  *40 - 0.45 µm                  *60 - 0.65 µm                  1*0 - 1.0 µm                  3*0 - 3.0 µm                  5*0 - 5.0 µm                  10* - 10.0 µm                  20* - 20.0 µm                  30* - 30.0 µm                  40* - 40.0 µm                  60* - 60.0 µm                  999 - 100.0 µm</p>	<p><b>316 SS Ring</b></p> <p>N - No Ring</p>	<p><b>Cartridge Length</b></p> <p>1 - 10 inches (25.4 cm)                  2 - 20 inches (50.8 cm)                  3 - 30 inches (76.2 cm)                  4 - 40 inches (101.6 cm)</p>	<p><b>O-ring code</b></p> <p>S - Silicone                  B - Buna                  V - Viton                  T - Teflon® Encapsulated Viton                  E - EP                  R - Teflon® Encapsulated Silicone</p>	<p><b>End cap code</b></p> <p>0 - Flat Gasket, double open end                  3 - 213/119 Both Ends                  4 - 213/119 w/ Plug                  5 - 2-222 O-Ring / Flat                  6 - 2-226 O-Ring / Flat                  8 - 2-222 O-ring with Spear                  9 - 2-226 O-ring with Spear</p>
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