ELECTRONICS & CHEMICAL FILTERS

These cartridges are designed to meet the special needs of the electronics and high purity chemical industries. Each cartridge is power rinsed and flushed to ensure minimal extractables and no manufacturing debris

- EPS grade Polyethersulfone Membrane Media Filter Cartridges (PDF)
  Polyethersulfone membrane cartridges are resistant to most acids and bases and capable of handling oxidizing agents. High flow rate makes Polyethersulfone a good choice for central DI water systems.

ENM grade Nylon Membrane Media Filter Cartridges(PDF)

- Able to remove particles below the rated pore size of the membrane, these cartridges exhibit superior retention. Often used for DI water, photoresist, developers and other compatible chemicals.

EPD grade Polypropylene Depth Media Filter Cartridges (PDF)

- This cartridge produces minimal extractables when exposed to typical process chemical and solvents.

EPM grade Polypropylene Membrane Media Filter Cartridges (PDF)

- This cartridge produces minimal extractables when exposed to typical process chemicals and solvents. These membrane cartridges should be used when absolute retention is essential for the process.

CRITICAL PROCESS FILTRATION, INC.

EPS grade

Polyethersulfone Membrane Media Filter Cartridges developed for the special needs of the electronics industry

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

EPS cartridges are designed to meet the special needs of the electronics and high purity chemical industries. Polyethersulfone membrane cartridges are resistant to most acids and bases and capable of handling strong sanitization agents. High flow rates make Polyethersulfone a good choice for central DI water systems. This membrane will also handle elevated process temperatures in compatible fluids. To minimize extractables, each cartridge module is pulse, power flushed until the rinse effluent reaches 17+ Megohm-cm and less than 3 ppb TOC. Each cartridge module is also individually tested.

Construction Materials [1]

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

[1]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 ² (0.65 m²) Per 10" length

Validation

EPS grade cartridges are validated using modified HIMA protocols at a challenge level of 10^6 organisms per cm² of filter media. (0.22 µm challenged with Brevundimonas diminutal) (0.45 µm challenged with Serratia marscecens) (0.65 µm challenged with Saccharomyces cerevisiae).

Applications

Final Filtration of:

- UP DI Water
- Acids & Bases
- Plating Solutions
- Etch Baths
- Chemicals
- Solvents
- Process Water
- Point of Use Filtration

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 EPS cartridges are available from Critical Process Filtration, Inc.®.

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

Pore Size	Air Diffusion Rate
0.03 µm	‹ 30 cc/min at 60 psi (4137 mbar)
0.1 µm	‹ 30 cc/min at 48 psi (3307 mbar)
0.22 µm	‹ 30 cc/min at 35 psi (2412 mbar)
0.45 µm	‹ 30 cc/min at 20 psi (1378 mbar)
0.65 µm	‹ 30 cc/min at 15 psi (1044 mbar)
0.8 µm	‹ 30 cc/min at 12 psi (827 mbar)
1.0 µm	‹ 30 cc/min at 8 psi (552 mbar)
1.2 µm	‹ 30 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, end cap code, length, and O-ring material. 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: EPS*10N00002T5.

EPS □□□ □ 0000 □ □ □

Pore size code
- ***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

316 SS Ring
- **S** = SS Ring
- **N** = No Ring

Cartridge Length
- **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)

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, 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

Note: For additional cap codes, see selection guide data sheet. CCDS0107

CRITICAL PROCESS FILTRATION, INC.

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CRITICAL PROCESS FILTRATION, INC.

ENM grade

Nylon Membrane Media Filter Cartridges Developed for the Special Needs of the Electronics Industry

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

ENM cartridges are designed to meet the special needs of the electronics and high purity chemical industries. Able to remove particles below the rated pore size of the membrane, these cartridges exhibit superior retention. Often used for DI water, photoresist, developers and other compatible chemicals. Most cost effective membrane cartridge. Each cartridge module is pulse, power flushed until the rinse effluent reaches 17+ megohm-cm, and less than 3 ppb TOC. Each cartridge module is also individually tested for integrity. Our design criteria and special procedures allow us to provide the highest quality electronic grade cartridges.

Construction Materials [1]

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®

[1]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 ft² (0.65 m²) Per 10" length

Validation

ENM grade cartridges are validated using modified HIMA protocols at a challenge level of 10^6 organisms per cm² of filter media. (0.22 µm challenged with Brevundimonas diminutal) (0.45 µm challenged with Serratia marscecens) (0.65 µm challenged with Saccharomyces cerevisiae).

Applications

Final Filtration of:

- DI Water
- Solvents
- Photoresists
- Chemicals
- Process Water
- Developers

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 all of the common sanitization procedures used in cleaning DI water loops. The best results are obtained by sanitization protocols which coincide with filter change out. This allows new cartridges to be put into pre-sanitized isolated housings. Sanitization of new cartridges is not required, however if desired, safe sanitization protocols are available from Critical Process Filtration.

Integrity Test Specifications

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

Pore Size	Air Diffusion Rate
0.03 µm	≤ 30 cc/min at 60 psi (4137 mbar)
0.10 µm	≤ 30 cc/min at 48 psi (3307 mbar)
0.22 µm	≤ 30 cc/min at 35 psi (2412 mbar)
0.45 µm	≤ 30 cc/min at 20 psi (1378 mbar)
0.65 µm	≤ 30 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	0.03 µm	0.10 µm	0.22 µm	0.45 µm	0.65 µm
GPM	0.75	1.0	1.25	3.0	5.5
LPM	2.84	3.79	4.73	11.36	20.82

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.

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.

Ordering Information

The cartridge catalog number is made up of several variable characters i.e. pore size, end cap code, length, and O-ring material. 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: ENM*10N00002T5.

ENM [ ] [ ] **000** [ ] [ ] [ ]

Pore size code
- ***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

316 SS Ring
- **S** = Ring
- **N** = No Ring

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

CRITICAL PROCESS FILTRATION, INC.

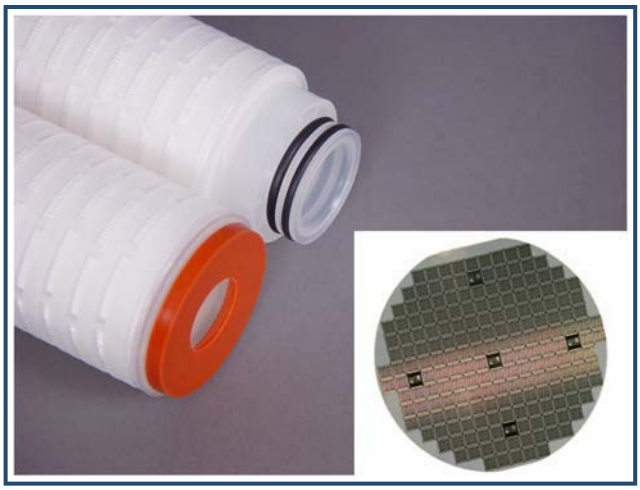
CRITICAL PROCESS FILTRATION, INC.

EPD grade

Polypropylene Depth Media Filter Cartridges
Developed for the special needs of the electronics industry

Distributed by: John Mulhern Company
PO Box 6602
Santa Rosa, Ca 95406
800 761-9201 707 578-5105
fax 707 578-8692
info@jmulhern.com

EPD cartridges are designed to meet the special needs of the electronics and high purity chemical industries. Raw materials of construction were specifically chosen on the basis of their ability to be chemically compatible plus produce minimal extractables when exposed to typical process chemicals and solvents. Each cartridge module is pulse, power flushed until the rinse effluent reaches 17+ megohm -cm and less than 3 ppb TOC. Each cartridge module is also individually tested to ensure it is integral. EPD cartridges are rated at 99.9% efficiencies at the rated pore size. Our design criteria and special procedures allow us to provide the highest quality electronic grade cartridges.



Construction Materials [1]

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®

[1]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.

Applications

Pre & Final Filtration of:

- UP DI Water
- Acids & Bases
- Plating Solutions
- Etch Baths
- Chemicals
- Solvents
- Process Water

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: ..... 194^0F (90^0C)
Autoclave: ..... 260^0F (127^0C), 30 min, multiple cycles
In-line Steam: ..... 275^0F (135^0C), 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 EPD cartridges are available from Critical Process Filtration, Inc.®.

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 ft² (0.67 m²) 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

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 0.10 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: EPD*10N00002T5.

EPD □□□ □ 000 □ □ □

Pore size code

- ***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

316 SS Ring

- **S** = Ring
- **N** = No Ring

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

CRITICAL PROCESS FILTRATION, INC.

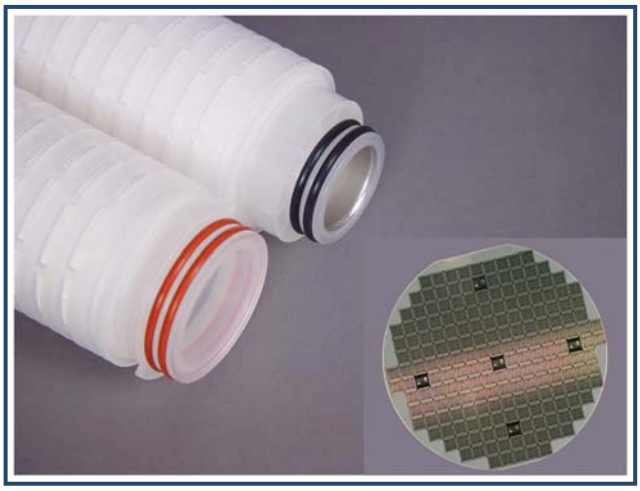
CRITICAL PROCESS FILTRATION, INC.

EPM grade

Polypropylene Membrane Media Filter Cartridges
Developed for the special needs of the electronics industry

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

EPM cartridges are designed to meet the special needs of the electronics and high purity chemical industries. Materials of construction were specifically chosen on the basis of their ability to be chemically compatible plus produce minimal extractables when exposed to typical process chemicals and solvents. Each cartridge module is pulse, power flushed until the rinse effluent reaches 17+ megohm -cm and less than 3 ppb TOC. Each cartridge module is also individually tested to ensure it is integral. These membrane cartridges should be used when absolute retention is essential for the process.



Construction Materials [1]

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

[1]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 ² (0.65 m²) Per 10" length

Applications

Filtration of:

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

Sanitization / Sterilization

Filtered Hot Water: ..... 194^{0}F (90^{0}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 EPM cartridges are available from Critical Process Filtration, Inc.®.

Validation

EPM grade cartridges are validated using modified HIMA protocols

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

Pore Size	Air Diffusion Rate
0.1 µm	‹ 30 cc/min at 40 psi (2756 mbar)
0.22 µm	‹ 30 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 µm	0.22 µm
GPM	0.75	2.75
SCFM	›20 SCFM/psid/10 inch cartridge length	›30 SCFM/psid/10 inch cartridge length
Gas Retention	0.01 µm	0.02 µm

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: EPM*10N00002T5.

EPM [ ] [ ] 000 [ ] [ ] [ ]

Pore size code
- ***10** - 0.10 µm
- ***20** - 0.22 µm

316 SS Ring
- **S** - Ring
- **N** - No Ring

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

CRITICAL PROCESS FILTRATION, INC.