



EPS Filters

Single Layer PES Membrane

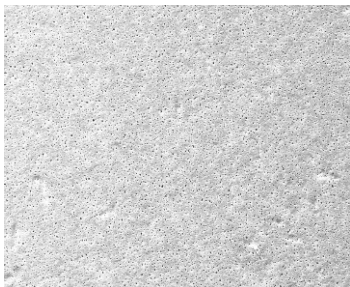


EPS Filters provide a wide selection of single layer Polyethersulfone (PES) cartridge and capsule filters designed for the electronics industry and used for removing fine and ultrafine particles from aqueous liquids. Pore sizes range from 0.02 to 0.45 μm and the filter devices scale from laboratory to full production using identical materials to ensure consistent results.

The hydrophilic EPS filters have low extractables for fast rinse-up to conductivity limits and fast rinse-down to TOC limits. EPS filters deliver high flow and throughput with chemical compatibility across a wide pH range. They are commonly utilized in the final filtration of liquids for point of use tools.

EPS filters are pulse power flushed until the rinse effluent reaches 18+ Megohm-cm and less than 3ppb TOC. Each filter is individually tested to ensure integrity.

Critical Process provides unrivaled delivery times, technical consulting before purchasing, and very competitively priced high-performance products. Our comprehensive testing & analysis and validation services support your team whenever they need it. Your process experts partnering with our filtration experts is how we deliver your company's solution right the first time.



EPS Filter are recommended for:

- UPDI Water
- Acids & Bases
- Etch Baths
- Solvents
- Bulk Chemicals
- Plating Solutions

Fine Particle Removal Clarification & Prefiltration



CARTRIDGES – Nominal Dimensions
Length: 5 to 40 in. (12.7 to 101.6 cm)
Outside Diameter: 2.75 in. (7.0cm)



CAPSULES – Nominal Dimensions
Length: 2 to 30 in. (5.1 to 76.2 cm)
Outside Diameter: 3.50 in. (8.9 cm)

Maximum Operating Parameters

	CARTRIDGES	CAPSULES
Liquid Operational Pressure	N/A	80 psi at 68 °F (5.52 bard at 20 °C)
Gases Operational Pressure	N/A	60 psi at 68 °F (4.14 bar at 20 °C)
Operating Temperature (water)	180 °F at 30 psid (82 °C at 2.07 bard)	110 °F at 30 psid (43 °C at 2.07 bard)
Forward Differential Pressure	80 psid at 68 °F (5.52 bard at 20 °C) (Liquid and Gas)	Liquid - 80 psid at 68 °F (5.52 bard at 20 °C) Gas - 60 psi at 68 °F (4.14 bar at 20 °C)
Reverse Differential Pressure	50 psid at 68 °F (3.45 bard at 20 °C)	50 psid at 68 °F (3.45 bard at 20 °C)
Recommended Changeout Pressure	35 psid (2.41 bard)	35 psid (2.41 bard)

Sanitization & Sterilization

Filtered Hot Water*	90 °C (194 °F), 30 minutes, multiple cycles, max 3 psid forward flow	N/A
Inline Steam*	275 °F (135 °C), 30 min, 25+ cycles	N/A
Autoclave*	250 °F (121 °C), 30 min, 25+ cycles	250 °F (121 °C), 30 min, 25+ cycles
Chemical Sanitization	Performed using industry standard concentrations of hydrogen peroxide, peracetic acid, sodium hypochlorite and other selected chemicals.	

*Cartridge Filters – For all elevated temperature procedures above, a stainless-steel support ring is required.

Filtration Area (Nominal)

	CAPSULES	CARTRIDGES AND CAPSULES				CARTRIDGES
Length	2"	5"	10"	20"	30"	40"
	5.08cm	12.7cm	25.4cm	50.8cm	76.2cm	101.6cm
Area	1.2 ft ²	3.4 ft ²	7.3 ft ²	14.6 ft ²	21.9 ft ²	29.2 ft ²
	0.11m ²	0.32m ²	0.68m ²	1.36m ²	2.04m ²	2.72m ²

Integrity Testing

PORE SIZE	DIFFUSION TEST PRESSURE*		BUBBLE POINT MINIMUM*	
	PSIG	BARG	PSIG	BARG
μm				
0.02	60	4.14	**	**
0.03	60	4.14	**	**
0.10	48	3.31	**	**
0.22	35	2.41	50	3.4
0.45	20	1.38	25	1.7

DIFFUSION SPECIFICATIONS*						
Length	2"	5"	10"	20"	30"	40"
mL/min (0.02μm)	≤ 3.6	≤ 10.8	≤ 25	≤ 50	≤ 75	≤ 100
mL/min (all other pore sizes)	≤ 4.3	≤ 12.9	≤ 30	≤ 60	≤ 90	≤ 120

* For water wetted membrane

** Test pressure exceeds operational limits of capsule filters.
Use the Diffusion Test method.

Construction Materials

Filtration Media	Single Layered Polyethersulfone (PES) Membrane
Media Support	Polypropylene
End Caps, Center Core, Outer Support Cage, Capsule Housing	Polypropylene
Sealing Method	Thermal Bonding
O-Rings/Gaskets Cartridges only	Buna, Viton® (or FKM), EPDM, Silicone, FEP Encapsulated Silicone, FEP Encapsulated Viton (or FKM)

Extractables

EPS filters typically exhibit low levels of non-volatile residues and conform with USP <661>/<665>.

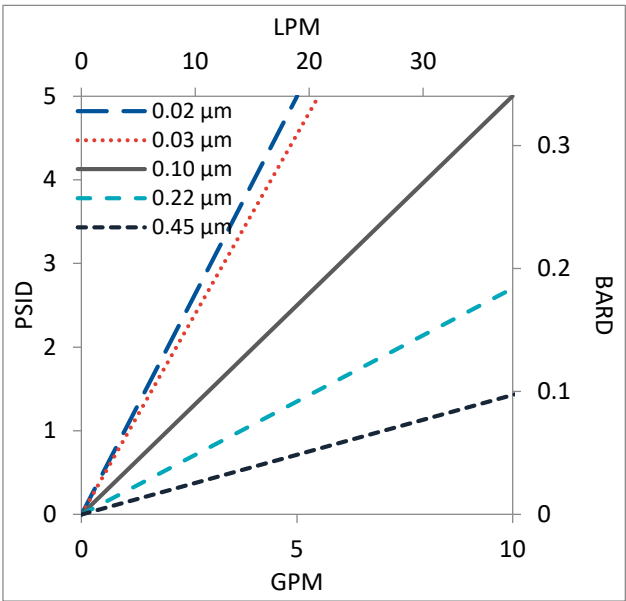
TOC and Conductivity

EPS filter water effluent conforms with the TOC and water conductivity standards of SEMI Standard F104 (modified) and F63 after an appropriate flush with ultrapure water.

Non-Fiber Releasing

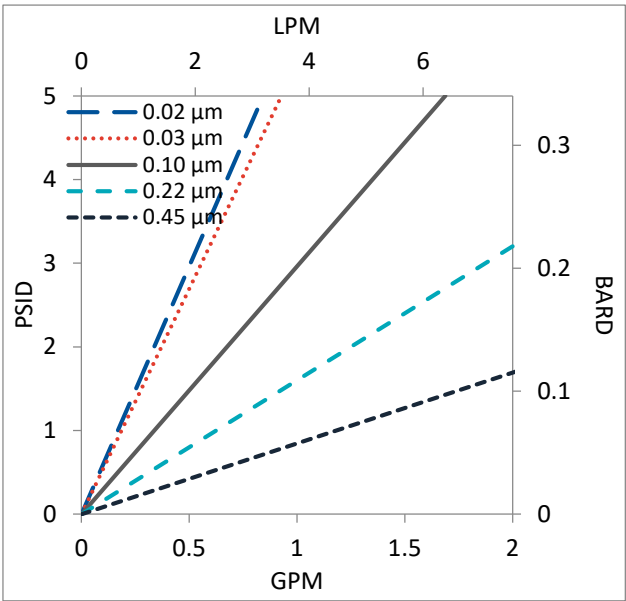
The EPS filters comply with Title 21 CFR sections 211.72 and 210.3 (b)(6), for non-fiber releasing filters.

Flow Rates for EPS Cartridges by Pore Size



Flow rates for Cartridge filters are per 10-inch length. The test fluid is water at ambient temperature.

Flow Rates for EPS Capsules by Pore Size



Flow rates for Capsule filters are tested using a 2" capsule filter with 1" sanitary inlet and outlet ports. The test fluid is water at ambient temperature. Flow rates for larger capsules will scale with filtration area. Rates will vary based on end configuration of the capsule.

EPS Filters Ordering Information

Fill in the corresponding codes in the boxes below to build your Part Number.

To consult with one of our technical team members, request a quote or place an order:
call (603) 880-4420 or [contact us here](#).

Cartridge Filters

Diagram illustrating the Cartridge Filter Part Number structure:

Part Number Structure: EPS [] [] 000 [] [] []

Pore Size Code

- 02 = 0.02 μm
- 03 = 0.03 μm
- 10 = 0.10 μm
- 20 = 0.22 μm
- 40 = 0.45 μm

SS Ring

- S = Ring
- N = No Ring

Length

- 05 = 5 in. (12.7 cm)
- 97 = 9.75 in. (24.8 cm) (DOE only)
- 01 = 10 in. (25.4 cm)
- 02 = 20 in. (50.8 cm)
- 03 = 30 in. (76.2 cm)
- 04 = 40 in. (101.6 cm)

O-Ring/Gasket Code

- S = Silicone
- B = Buna
- V = Viton (or FKM)
- T = FEP Encapsulated Viton (or FKM)
- E = EP
- R = FEP 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
- 25 = Short 2-222/Plug

[*Additional End Configurations Available](#)

Capsule Filters

Diagram illustrating the Capsule Filter Part Number structure:

Part Number Structure: CP EPS [] [] 000 [] [] [] - [] []

Pore Size Code

- 02 = 0.02 μm
- 03 = 0.03 μm
- 10 = 0.10 μm
- 20 = 0.22 μm
- 40 = 0.45 μm

Length

- A = 2"
- B = 5"
- 1 = 10"
- 2 = 20"
- 3 = 30"

Pre-Sterilized or Not

- S = Pre-Sterilized
- G = Gamma Stable
- N = Not Sterilized

Inlet

- A = 1/4" Female NPT
- B = 1/4" Male NPT
- C = 3/8" Female NPT
- D = 1/2" Female NPT
- E = 1/2" Male NPT
- F = 1" Sanitary
- G = Hose Barb*
- H = 1 1/2" Sanitary with side vent
- I = 1/2" Single Stepped Barb with side vent
- J = 3/4" Single Step Barb with Side Vent
- Y = 3/8" Compression (JACO®) (Top Luer lock vent only)
- Z = 6mm Quick Disconnect (Top Luer lock vent only)

Outlet

- A = 1/4" Female NPT
- B = 1/4" Male NPT
- C = 3/8" Female NPT
- D = 1/2" Female NPT
- E = 1/2" Male NPT
- F = 1" Sanitary
- G = Hose Barb*
- H = 1 1/2" Sanitary with side vent
- I = 1/2" Single Stepped Barb with side vent
- IB = 1/2" Single Stepped Barb with filling bell and side vent
- J = 3/4" Single Step Barb with Side Vent
- Y = 3/8" Compression (JACO®) (Top Luer lock vent only)
- Z = 6mm Quick Disconnect (Top Luer lock vent only)

O-Rings (Bleed Valve Only)

- S = Silicone
- E = EP
- V = Viton
- B = Buna
- K = FFKM

Side Vent Options

- 1 = Luer Lock
- 2 = 1/8" Bleed Valve
- 3 = 1/4" Bleed Valve

*Fits hoses/tubes with inner diameter 11/32 to 9/16 inches



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