

# EPS/HA Filters

Single Layer PES Membrane

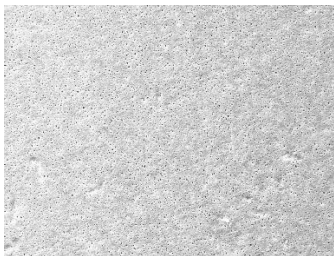


EPS/HA Filters provide the same wide selection of single layer Polyethersulfone (PES) cartridge and capsule filters as the standard EPS filter but with a higher filtration area which delivers a higher flow rate. All EPS products are designed for the electronics industry and used for removing fine and ultrafine particles from aqueous liquids. Pore sizes range from 0.02 to 0.45  $\mu\text{m}$  and the filter devices scale from laboratory to full production using identical materials to ensure consistent results.

The hydrophilic EPS/HA filters have low extractables for fast rinse-up to conductivity limits and fast rinse-down to TOC limits. EPS/HA 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/HA 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/HA filter is 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
<b>Liquid Operational Pressure</b>	N/A	80 psi at 68 °F (5.52 bard at 20 °C)
<b>Gases Operational Pressure</b>	N/A	60 psi at 68 °F (4.14 bar at 20 °C)
<b>Operating Temperature (water)</b>	180 °F at 30 psid (82 °C at 2.07 bard)	110 °F at 30 psid (43 °C at 2.07 bard)
<b>Forward Differential Pressure</b>	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)
<b>Reverse Differential Pressure</b>	50 psid at 68 °F (3.45 bard at 20 °C)	50 psid at 68 °F (3.45 bard at 20 °C)
<b>Recommended Changeout Pressure</b>	35 psid (2.41 bard)	35 psid (2.41 bard)

## Sanitization & Sterilization

<b>Filtered Hot Water*</b>	90 °C (194 °F), 30 minutes, multiple cycles, max 3 psid forward flow	N/A
<b>Inline Steam*</b>	275 °F (135 °C), 30 min, 25+ cycles	N/A
<b>Autoclave*</b>	250 °F (121 °C), 30 min, 25+ cycles	250 °F (121 °C), 30 min, 25+ cycles
<b>Chemical Sanitization</b>	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)

Length	CAPSULES	CARTRIDGES AND CAPSULES				CARTRIDGES
	2"	5"	10"	20"	30"	40"
	5.08cm	12.7cm	25.4cm	50.8cm	76.2cm	101.6cm
Area	1.5 ft <sup>2</sup>	4.3 ft <sup>2</sup>	9.1 ft <sup>2</sup>	18.2 ft <sup>2</sup>	27.3 ft <sup>2</sup>	36.4 ft <sup>2</sup>
	0.14m <sup>2</sup>	0.40m <sup>2</sup>	0.85 <sup>2</sup>	1.70m <sup>2</sup>	2.55m <sup>2</sup>	3.40m <sup>2</sup>

## 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)	≤ 4.4	≤ 13.3	≤ 31	≤ 62	≤ 93	≤ 124
mL/min (all other pore sizes)	≤ 5.3	≤ 15.9	≤ 37	≤ 74	≤ 111	≤ 148

\* For water wetted membrane  
 \*\* Test pressure exceeds operational limits of capsule filters.  
 Use the Diffusion Test method.

## Construction Materials

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

## Extractables

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

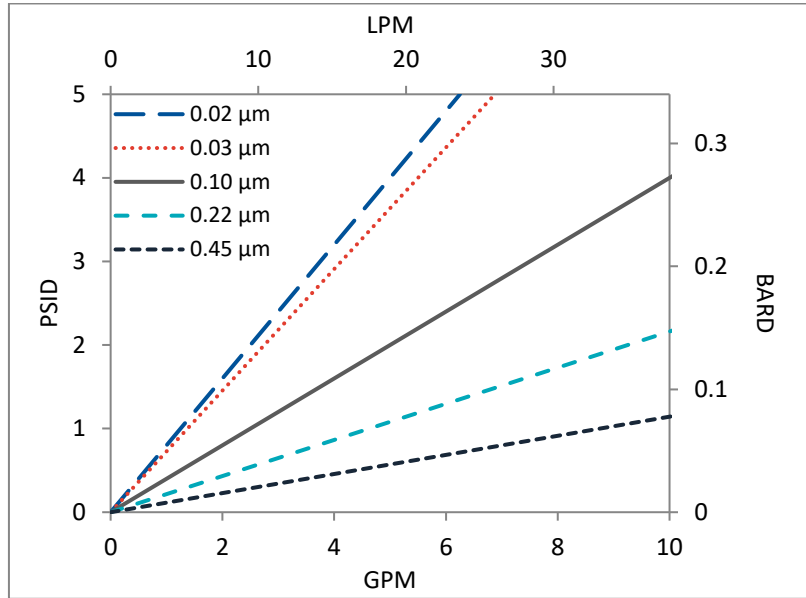
## TOC and Conductivity

EPS/HA 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

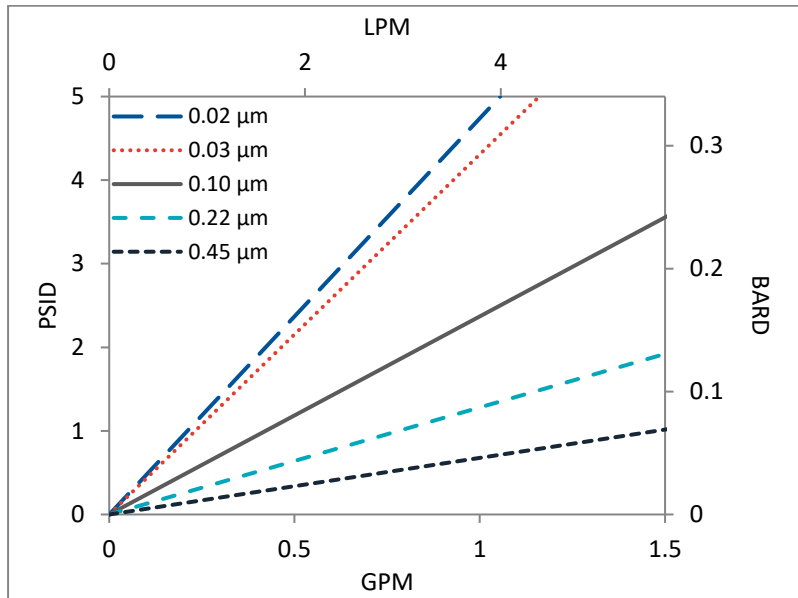
The EPS/HA filters comply with Title 21 CFR sections 211.72 and 210.3 (b)(6), for non-fiber releasing filters.

## Flow Rates for EPS/HA 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/HA Capsules by Pore Size



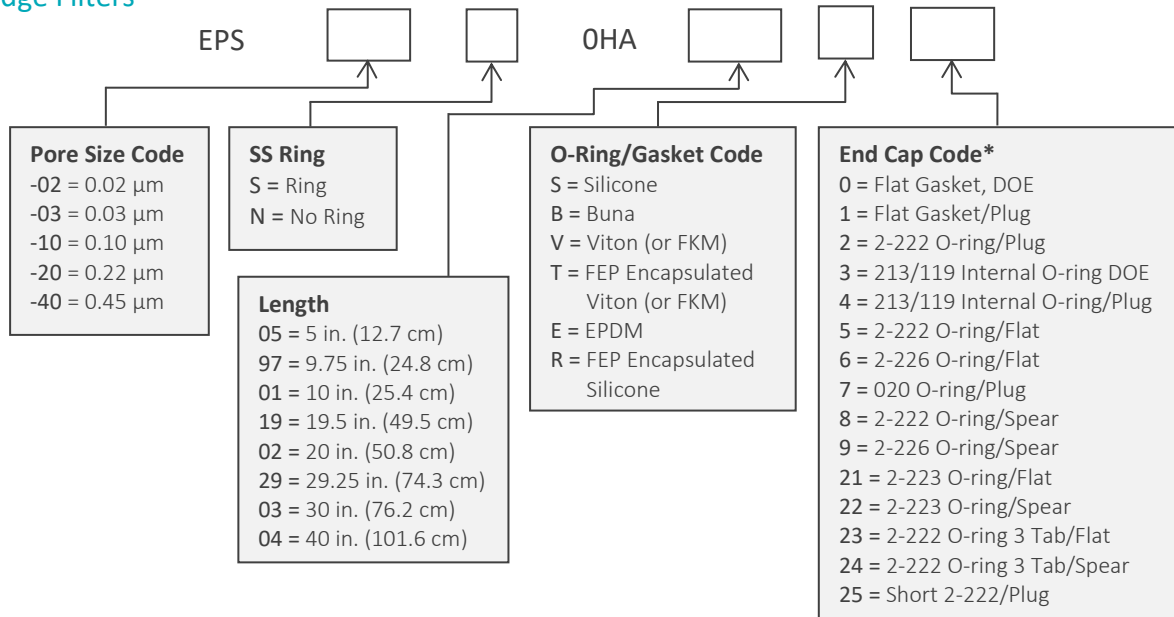
Flow rates for Capsule filters are per square foot of membrane area. The test fluid is water at ambient temperature. Flows are tested using a 2" capsule filter with 1/2" FNPT inlet and outlet ports. Rates will vary based on end configuration of the capsule.

## EPS/OHA Filters Ordering Information

All Critical Process filters are configurable to meet customer specifications.  
Fill in the corresponding codes in the boxes below to build your Part Number.

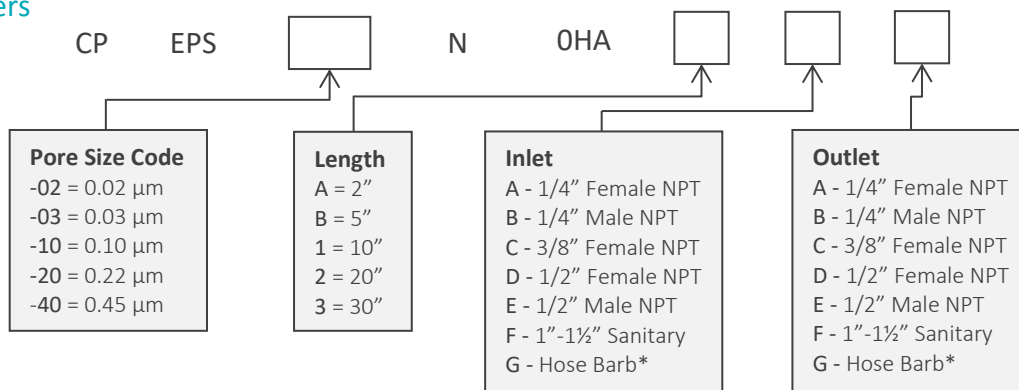
To consult with one of our technical team members, request a quote or place an order:  
call (603) 880-4220 Ext. 106, or send an email to [sales@criticalprocess.com](mailto:sales@criticalprocess.com)

### Cartridge Filters



\*Additional End Configurations Available

### Capsule Filters



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

### Housings

CPF offers industrial and sanitary housings in Single-Round (Inline and T-Style) and Multi-Round configurations. Contact us or visit our website for more information.



One Chestnut Street  
Nashua, NH 03060  
603.880.4420  
FAX: 603.880.4536

CriticalProcess.com

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