



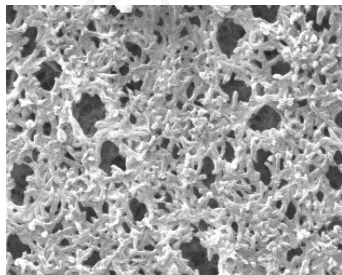
# PNC Filters

Positively Charged Nylon 6,6 Membrane

PNC cartridge and capsule filters consist of a positively charged Nylon 6,6 membrane used for filtering aqueous and non-aqueous liquids that contain negatively charged contaminants. Available in 0.10, 0.22, 0.45 and 0.65  $\mu\text{m}$ , PNC filters are validated for bacteria retention to provide reliable sterile filtration performance.

The positive charge removes negatively charged biological contaminants such as endotoxin, virus and other cell fragments. Depending on level of contaminant and flow rate, PNC filters will typically exhibit  $> 2$ -log removal of endotoxin. This combination of functionality makes the PNC filter an excellent choice for pharmaceutical and bioprocessing applications.

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.



PNC filters are recommended for sterilizing and endotoxin removal in:

- Process Water
- Water for Injection (WFI)

## Sterilizing Filters

## Endotoxin Removal



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



**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 and other selected chemicals.	

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

Filtration Area (Nominal) Integrity Testing: PPS Series

	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 ft²	3.3 ft²	7.0 ft²	14.0 ft²	21.0 ft²	28.0ft²
	0.11m²	0.31m²	0.65m²	1.30m²	1.95m²	2.60m²

Integrity Testing

PORE SIZE	DIFFUSION TEST PRESSURE*		BUBBLE POINT MINIMUM*	
	PSIG	BARG	PSIG	BARG
µm				
0.10	48	3.30	**	**
0.22	35	2.41	50	3.5
0.45	20	1.37	25	1.7
0.65	15	1.03	19	1.3

DIFFUSION SPECIFICATIONS						
Length	2"	5"	10"	20"	30"	40"
mL/min	≤ 2.1	≤ 6.3	≤ 15	≤ 30	≤ 45	≤ 60

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

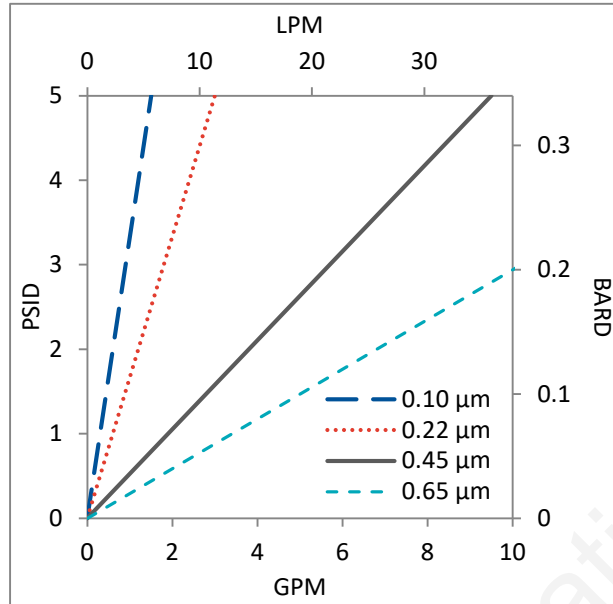
Construction Materials

Critical Process Filtration, Inc. Filtration Media	Positively Charged Nylon 6,6 Membrane with Polyester support
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Validation

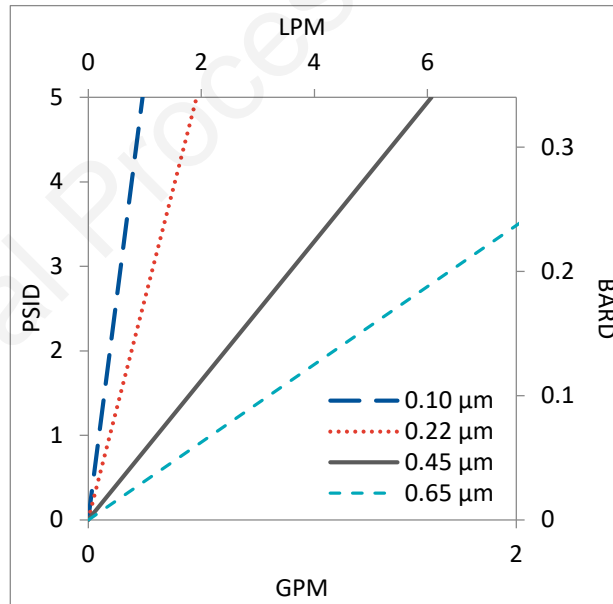
PNC filters are validated using test procedures that comply with ASTM F 838-15(ae1) protocols for the determination of bacterial retention in filters used for liquid filtration. The challenge level is a minimum of 10<sup>7</sup> organisms per cm² of

## Flow Rates for PNC 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 PNC 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.

## PNC 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](#).

**\*\*Please note this product is not designed or approved for use in Hemodialysis applications\*\***

### Cartridge Filters

PNC   000

Pore Size Code	SS Ring	Length	O-Ring/Gasket Code	End Cap Code*
-10 = 0.10 $\mu$ m -20 = 0.22 $\mu$ m -40 = 0.45 $\mu$ m -60 = 0.65 $\mu$ m	S = Ring N = No Ring	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)	S = Silicone B = Buna V = Viton (or FKM) T = FEP Encapsulated Viton (or FKM) E = EP R = FEP Encapsulated Silicone	0 = Flat Gasket, DOE 1 = Flat Gasket/Plug 2 = 2-222 O-ring/Plug 4 = 213/119 Internal O-ring/Plug 5 = 2-222 O-ring/Flat 6 = 2-226 O-ring/Flat 8 = 2-222 O-ring/Spear 9 = 2-226 O-ring/Spear 23 = 2-222 O-ring 3 Tab/Flat 24 = 2-222 O-ring 3 Tab/Spear

[\\*Additional End Configurations Available](#)

### Capsule Filters

CP PNC   000    -

Pore Size Code	Pre-Sterilized or Not	Length	Inlet	Outlet	Side Vent Options
-10 = 0.10 $\mu$ m -20 = 0.22 $\mu$ m -40 = 0.45 $\mu$ m -60 = 0.65 $\mu$ m	S = Pre-Sterilized G = Gamma Stable N = Not Sterilized	A = 2" B = 5" 1 = 10" 2 = 20" 3 = 30"	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)	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)	1 = Luer Lock 2 = 1/8" Bleed Valve 3 = 1/4" Bleed Valve

**O-Ring**  
(Bleed Valves Only)  
S = Silicone  
E = EP  
V = Viton  
B = Buna  
K = FFKM

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



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