

BNM Filters

Nylon 6,6 Membrane



Bioburden Control

Clarification & Prefiltration

The BNM cartridge and capsule filters are made with Nylon 6,6 membrane. These long-proven filters are used for bioburden control in water, solvents and aqueous solutions. Pore sizes range from 0.10 to 0.65 μm and the filter sizes scale from laboratory to full production using identical materials to ensure consistent results.

BNM filters have broad chemical compatibility making them well suited for the filtration of solvents and other harsh chemicals. They are used to prevent bacteria contamination and remove microbials before final sterilizing filters.

The BNM filters have high retention and throughput. They are flushed to remove manufacturing debris and reduce extractables. Products are 100% integrity tested. BNM capsules are available pre-sterilized.

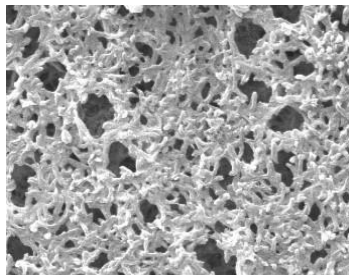
Critical Process provides unrivaled delivery times, technical consulting before purchasing, and very competitively priced high-performance products. Our comprehensive testing & analysis and validation services support your team whenever they need it. Your process experts partnering with our filtration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



CARTRIDGES – Nominal Dimensions

Length: 5 to 40 in. (12.7 to 101.6 cm)

Outside Diameter: 2.75 in. (7.0cm)



BNM bioburden control filters are recommended for:

- SVPs & LVPs
- Diagnostics
- Buffers
- WFI, Water Purification
- Non-protein Solutions
- Chemicals



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 (5.51 bard at 20 °C)
Gases Operational Pressure	N/A	60 psi at 68 °F (4.13 bar at 20 °C)
Operating Temperature (water)	180 °F at 30 psid (82 °C at 2.06 bard)	110 °F at 30 psid (43 °C at 2.06 bard)
Forward Differential Pressure	80 psid at 68 °F (5.51 bard at 20 °C)	80 psid at 68 °F (5.51 bard at 20 °C)
Reverse Differential Pressure	50 psid at 68 °F (3.44 bard at 20 °C)	50 psid at 68 °F (3.44 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, 5+ 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

	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	3.3 ft ²	7.0 ft ²	14.0 ft ²	21.0 ft ²	28.0 ft ²
	0.11m ²	0.30m ²	0.65m ²	1.30m ²	1.95m ²	2.60m ²

Integrity Testing

PORE SIZE	DIFFUSION TEST PRESSURE*		BUBBLE POINT MINIMUM*	
	PSIG	BARG	PSIG	BARG
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	≤ 4.3	≤ 14.1	≤ 30	≤ 60	≤ 90	≤ 120

* All specifications are for water wetted membrane
 ** Test pressure exceeds operational limits of capsule filters. Use the Diffusion Test method.

Construction Materials

Filtration Media	Nylon 6,6 Membrane with polyester support
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)

Validation

BNM 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 filters are challenged with the organisms listed below.

0.10µm: *Brevundimonas diminuta*
0.22µm: *Brevundimonas diminuta*
0.45µm: *Serratia marcescens*
0.65µm: *Saccharomyces cerevisiae*

Validation Guides available upon request.

Endotoxins

The levels of bacterial endotoxins in aqueous extracts from BNM filters are below current USP limits as specified for water for injection.

Extractables

BNM filters typically exhibit low levels of non-volatile residues.

TOC and Conductivity

BNM filters conform with TOC standards of USP <643> and the water conductivity standards of USP <645> after an appropriate flush with purified water.

Toxicity Compliance

The materials used to construct BNM filters are non-toxic and meet the requirements for the MEM Elution Cytotoxicity Test and the requirements for Biological Reactivity Tests in the current version of the United States Pharmacopeia (USP) for Class VI - 121 °C Plastics.

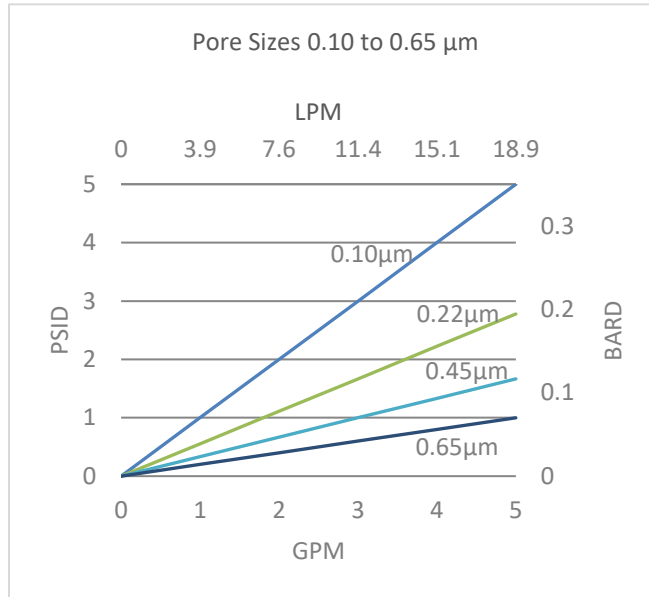
Non-Fiber Releasing

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

FDA Compliance

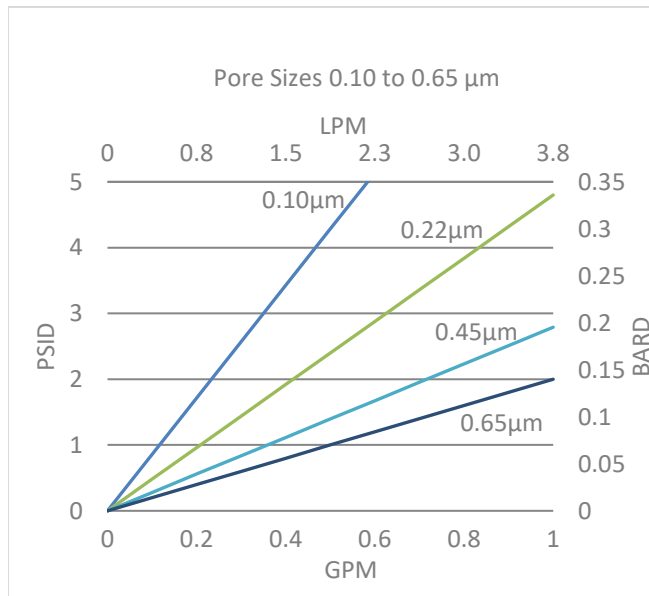
Materials meet the requirements listed by the FDA as appropriate for use in articles intended for repeated food contact as specified in Title 21 CFR sections 174.5, 177.1500, 177.1520, 177.1630, 177.2440, and 177.2600 as applicable.

Flow Rates for BNM Cartridges



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

Flow Rates for BNM Capsules



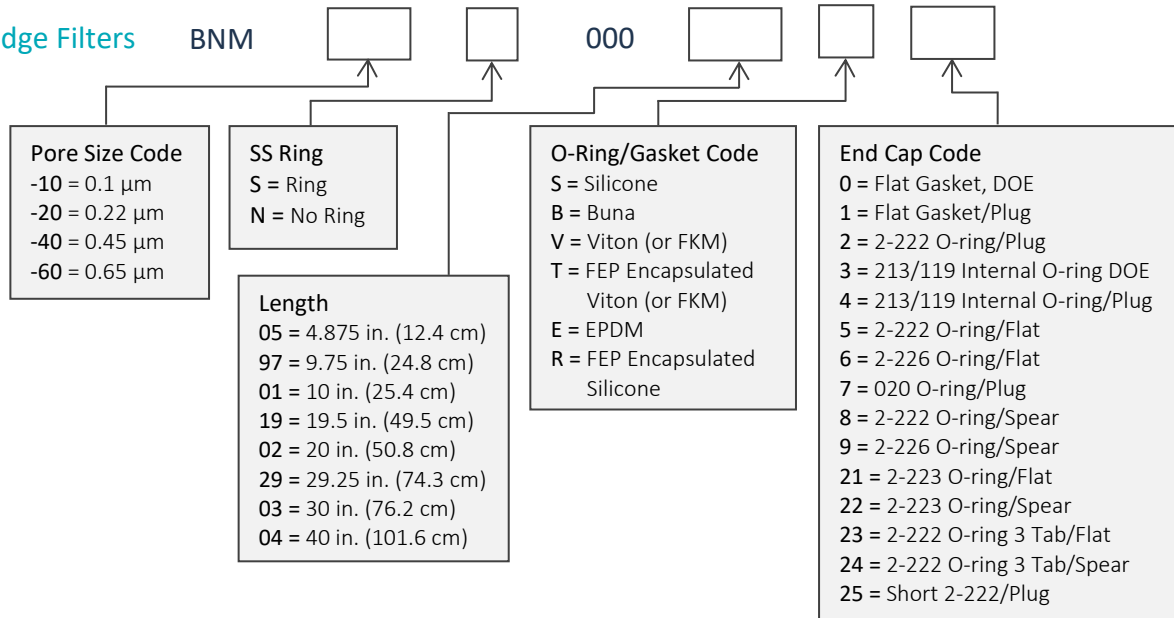
Flow rates for Capsule filters are per square foot of membrane area. The test fluid is water at ambient temperature. Flows are tested using a 2" capsule filter with 1/2" FNPT inlet and outlet ports. Rates will vary based on end configuration of the capsule.

BNM Filters Ordering Information

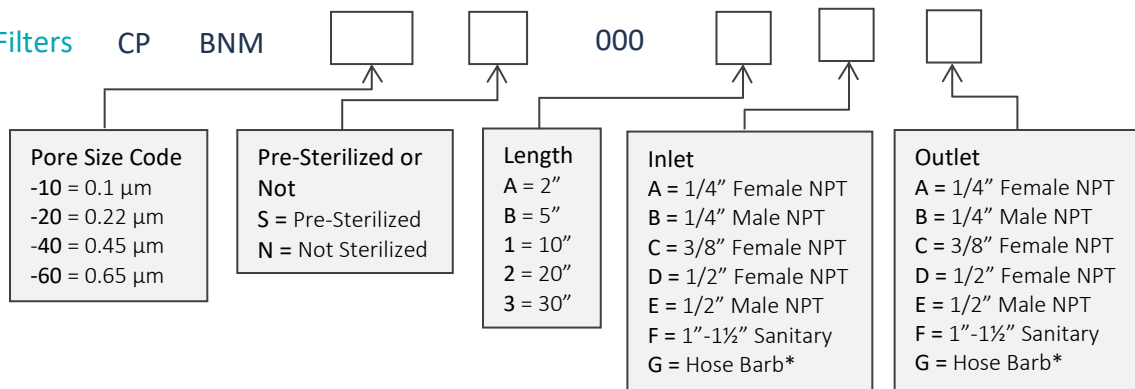
All Critical Process filters are configurable to meet customer specifications.
Fill in the corresponding codes in the boxes below to build your Part Number.

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

Cartridge Filters



Capsule Filters



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

Housings

CPF offers Model CSH sanitary housings in Single-Round (Inline and T-Style) and Multi-Round (3, 6, 8, 12 and 21-round) configurations.



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