

NanoSHIELD[®] LDC Filter Capsules

Superior Defect Reduction from Advanced Photoresists and Chemicals

NanoSHIELD LDC filter capsules have been specially designed to combine the highest level of particle retention with superior flow rates and minimal pressure drop for demanding high viscosity chemical applications. Utilizing Hollow Fiber Technology (HFT), NanoSHIELD filters are able to deliver superior flow with minimal pressure drop, while maintaining the highest level of filter efficiency in a small disposable design.

All filters are critically cleaned, integrity tested, and rinsed with high purity water to provide fast start-up times and low extractables right out of the box. The small compact design of NanoSHIELD LDC filter capsules make them ideally suited for critical applications requiring low hold-up volume with superior flow rates and high particle retention at 0.01, 0.02, 0.05, and 0.1 μm .

NanoSHIELD Capsule Construction

The filter's polypropylene and polyethylene materials of construction combined with quality manufacturing ensure that ionic, organic, and metallic contaminants are not being added back into the process fluid. Ionic, organic, and metallic contaminants can extract from surface modified and or improperly manufactured filters, which may reduce shelf life and or change the photo-speed, viscosity, or molecular weight of the photo-chemical.

Features & Benefits

Hollow Fiber Technology.

- Up to 3 times more surface area as compared to equivalent sized capsules.
- Provides both lower operating and differential pressure across the filter to minimize outgassing and micro-bubble formation.
- Reduces hold-up volume and "dead space" by eliminating the filter core.
- Increased lifetime, throughput, and overall equipment effectiveness (OEE).

Polypropylene and Polyethylene Construction.

- Excellent chemical resistance to photoresists and ancillary chemicals.
- No IPA pre-wetting and system flushing required – eliminates a potential source of contamination and chemical interaction, while reducing downtime.

0.01 μm and 0.02 μm Retention Ratings.

- Superior removal of particles, gels, and micro-bubbles.
- Reduced micro-bridge and wafer level defects for 193 nm photoresists.

Superior Flow Rates.

- Flow rates 3 - 8 times higher as compared to competitive pleated capsules while not sacrificing particle removal efficiency.

Quality Manufacturing.

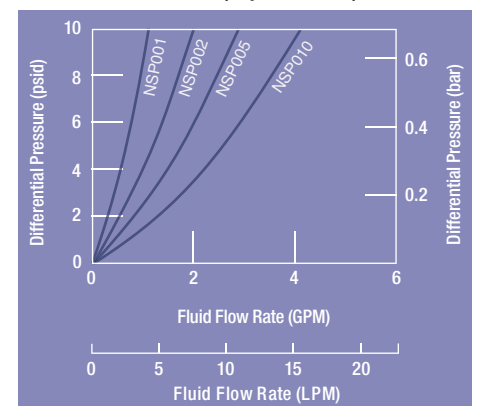
- Manufactured in a cleanroom to reduce particle adders and extractables.
- All filters are critically cleaned and integrity tested to ensure process repeatability.



Applications

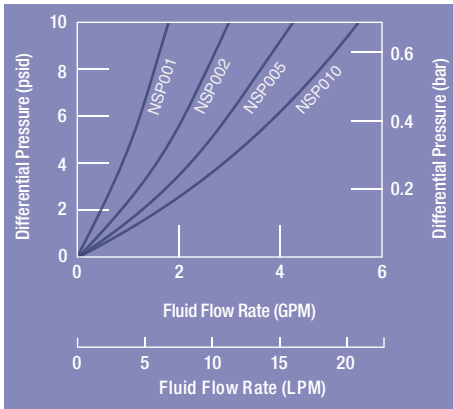
193 nm Photoresists	Alcohols
ARC, BARC, TARC	Bases
Etchants/Strippers	Developers
Polyimide	Solvents

Graph 1: 5" LDC Capsule Flow vs. Differential Pressure (1cps @ 25°C)



NanoSHIELD® LDC Filter Capsules

Graph 1: 10" LDC Capsule Flow vs. Differential Pressure (1cps @ 25°C)



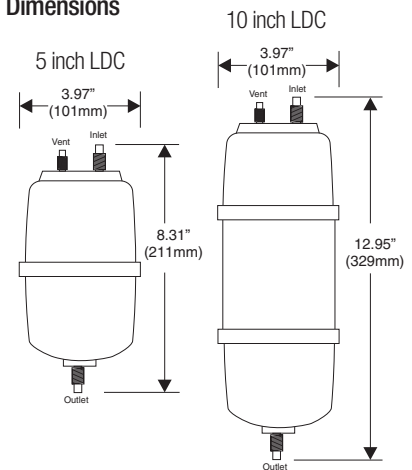
NanoSHIELD LDC Filter Capsules Specifications

Membrane Material	Hollow Fiber Polypropylene
Capsule Body	Polypropylene
O-Ring Material	Fluorocarbon Encapsulated PTFE
Potting Material	Polyethylene
Filtration Surface Area	5" Capsule – 10.8 ft ² (1.0 m ²) 10" Capsule – 23.7 ft ² (2.2 m ²)
Maximum Operating Pressure	58 psig @ 77°F (4 bar @ 25°C)
Maximum Operating Temperature	104°F (40°C)
Absolute Removal Ratings (µm)	0.01, 0.02, 0.05, and 0.1
Maximum Differential Pressure	28 psid @ 77°F (1.9 bar @ 25°C)
Filter Capsule Integrity	100% Tested

Ordering Guide

Media	Removal Rating	Configuration	Length	Fitting Connection
NSP	001 - 0.01 µm 002 - 0.02 µm 005 - 0.05 µm 010 - 0.1 µm	S - LDC	50 - 5" 01 - 10"	KH - 1/2" Flowell® 60 Inlet/Outlet Fittings with 1/4" Flowell 60 Vent Fitting

Dimensions



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CUNO Incorporated

400 Research Parkway
Meriden, CT 06450
U.S.A.
(800) 243-6894
(203) 237-5541
Fax (203) 630-4530
www.CUNO.com

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