

ALPHA®



ALpHA® Filter Cartridge

ALpHA® filter cartridges are absolute rated, pleated depth-type filters that are constructed of 100% polypropylene. ALpHA® cartridges are high contaminant capacity filters that are available in absolute particle retention ratings from 0.45 to 70 micron.

The ALpHA® filter's polypropylene media is made from a process which produces a self-bonded structure comprised of multiple layers of successively finer fibers and smaller pores. This unique construction results in a highly porous, tapered pore structure with a controlled, absolute rated inner layer and several outer prefilter layers to substantially increase dirt holding capacity. This filter matrix of decreasing pore size and remarkably high void volume provides superior flow rates at low pressure drops and high throughputs, while achieving submicron retentions, high efficiencies and extraordinary dirt holding capacities.

All components of the ALpHA® filter cartridge use FDA approved polypropylene. By a unique, state-of-the-art process, the filter media and its support structure are thermally bonded to the end caps. This provides an integral filter cartridge, which has excellent chemical compatibility and minimum extractables in a wide range of fluids and applications. ALpHA® filter cartridges are offered in a range of lengths and styles to allow service in most standard filter housings.



Meissner Technical Services (MTS) provides clients with complete technical and validation support for its manufactured products.

Features

- All-polypropylene construction
- Particle removal ratings from 0.45 to 70 µm
- Self-bonded filter media
- Tapered pore structure delivers high dirt holding capacity
- Contains no binders, adhesives or surfactants
- Biologically inert and non-toxic

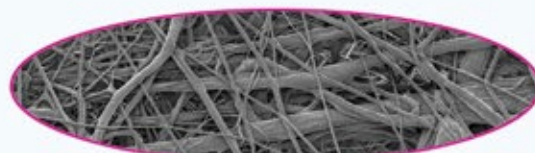
Benefits

- Wide chemical compatibility for use in a broad range of fluids
- Greater selection of optimum filter media for precise particle retention at desired rating
- Fixed pore structure, consistent particle removal, no migration of filter media, non fiber releasing
- Long filter service life, large throughputs, lower operating costs
- Wide solvent compatibility, extremely low extractables, quickly rinses to 18 meg-ohm
- Meets FDA requirements for food contact and complies with European Commission Directives; passes USP Class VI biological tests for plastics

Typical Applications

ALpHA® polypropylene filter cartridges are ideal for applications where high quality filtration and economy are important. They may be used as either prefilters or as final filters. For selected applications, they are a low cost alternative to membrane filter cartridges.

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|----------------------|---------------------|--------------------|-----------------------------|
| • Water Purification | • Ophthalmics | • Syrups | • Metal Finishing |
| • Chemicals | • Cosmetics | • Microelectronics | • Photovoltaics/Solar |
| • Solvents | • Diagnostics | • Photonics | • Petrochemicals |
| • Biologicals | • Serum Products | • Coatings | • Oil Well Production |
| • Pharmaceuticals | • Food and Beverage | • Printing | • Compressed Air and Gasses |



ALpHA® SEM

Materials of Construction

Filter Media:	Polypropylene
Upstream Support:	Polypropylene
Downstream Support:	Polypropylene
Core/Outer Guard:	Polypropylene
End Caps:	Polypropylene
Sealing Method:	Thermal Bonding
O-ring/Gasket Seal:	Buna, EPR, polyethylene, silicone, Teflon® over silicone, Teflon® over Viton®

All materials of construction listed above are FDA approved for food contact use per 21 CFR 177. Filters comply with European Commission Directive 2002/72/EC and subsequent amendments up to Commission Regulation (EU) No. 10/2011.

ALpHA® filters are manufactured in conformance to cGMP. ALpHA® filters meet the requirements as specified in the current USP Class VI plastics, physicochemical, oxidizable substances, and cytotoxicity tests. Bacterial endotoxin levels in aqueous extracts of ALpHA® filters are less than 0.5 EU/mL, as determined using the Limulus amoebocyte lysate (LAL) test. No binders, adhesives or surfactants are used in the construction of ALpHA® filters. ALpHA® filters are non-fiber-releasing as defined in 21 CFR 210.3(b)(6) and 211.72.

Filtration Ratings

Absolute Pore Sizes (µm):

0.45, 0.6, 0.8, 1.2, 2.4, 5, 7, 10, 20, 30, 40, 70

Cartridge Dimensions (nominal)

Diameter: 2.75" (7 cm)

Lengths: 10", 20", 30", 40"

(25 cm, 50 cm, 75 cm, 100 cm)



Sterilization

Steam-in-place (SIP):

Saturated steam @ 121-135 °C, 30-60 minutes

[15 psi (1 bar) to 30 psi (2 bar), 30-60 minutes]

Autoclave: 121-135 °C, 30-60 minutes

ALpHA® cartridges are capable of repeated sterilization cycles without loss of integrity. For applications requiring autoclave/SIP, a stainless steel reinforcement ring must be ordered. See "Reinforcement Ring Option" on back page.

Maximum Operating Temperatures & Pressures

Δp 80 psi @ 32 °F to 100 °F

(Δp 5,5 bar @ 0 °C to 38 °C)

Δp 60 psi @ 150 °F

(Δp 4,1 bar @ 66 °C)

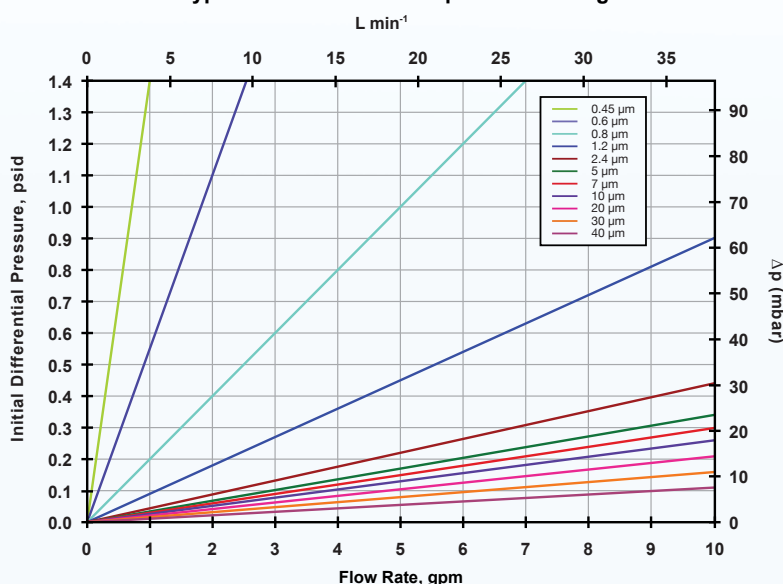
Δp 30 psi @ 180 °F

(Δp 2,1 bar @ 82 °C)

The removal ratings given in the chart represent actual dynamic measurements obtained from controlled laboratory tests using latex spheres in DI water at a flow rate of 2 gpm/10-inch element. The particle retention efficiencies were determined using a particle counter that accurately measured particles down to 0.3 µm.

Pore Size (µm)	Removal Rating in Microns (µm) at % Efficiency		
	100%	99%	90%
0.45	0.45	0.40	< 0.30
0.6	0.6	0.56	0.38
0.8	0.8	0.72	0.50
1.2	1.2	1.1	0.7
2.4	2.4	2.3	2.0
5	5	4.5	3.0
7	7	6.5	5.0
10	10	9.5	7.5
20	20	19.0	12.0
30	30	26.0	16.0
40	40	35.0	28.0

Typical Water Flow Rates per 10" Cartridge



End Cap Configuration



-226 O-ring

External -226 O-rings with locking tabs; open end for C6 and F6 SOE configurations



-222 O-ring

External -222 O-rings; open end for C2 and F2 SOE configurations



-226 nO-Ring®

External -226 nO-Ring® with locking tabs; open end for C5 and F5 SOE configurations



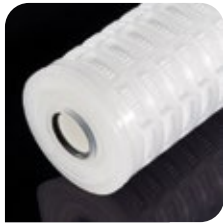
-222 nO-Ring®

External -222 nO-Ring®, open end for C1 and F1 SOE configurations



Flat Gasket

Flat Gasket; open end for GS and GL DOE configurations



Internal O-ring

Internal O-ring; open end for DN and DA DOE or RN and RA SOE configurations



Button Cap

Button Cap; closed end for C1, C2, C5 and C6 SOE configurations



Alignment Fin

Alignment Fin; closed end for F1, F2, F5 and F6 SOE configurations



Recessed Cap

Recessed Cap; closed end for RN and RA SOE configurations

DOE = Double Open End
SOE = Single Open End

Ordering Information

Filter Media	Absolute Rating (µm)	Cartridge Length	End Cap Configuration	Reinforcement Ring Option	Seal Material (O-ring or Gasket)
MF	0.45	3	F2	R	S
MF = polypropylene microfiber	0.45 0.6 0.8 1.2 2.4 5 7 10 20 30 40 70	1 = 10" (25 cm) 2 = 20" (50 cm) 3 = 30" (75 cm) 4 = 40" (100 cm)	GS = DOE; flat gaskets (9.75", 19.5", 29.25", 39" length filters) GL = DOE; flat gaskets (20", 30", 40" length filters) C1 = SOE; -222 nO-Ring®, button cap end C2 = SOE; -222 O-rings, button cap end F1 = SOE; -222 nO-Ring®, fin end F2 = SOE; -222 O-rings, fin end C5 = SOE; -226 nO-Ring®, button cap end C6 = SOE; -226 O-rings, button cap end F5 = SOE; -226 nO-Ring®, fin end F6 = SOE; -226 O-rings, fin end DN = DOE; internal -120 O-rings RN = SOE; internal -120 O-ring, recessed cap end DA = DOE; internal -213 O-rings RA = SOE; internal -213 O-ring, recessed cap end	(Blank) = Standard - no reinforcement ring R = Reinforcement ring; required for autoclave/SIP applications	<u>O-ring Seal</u> B = Buna E = EPR S = Silicone T = Teflon® over silicone V = Viton® X = Teflon® over Viton® <u>Gasket Seal</u> B = Buna E = EPR P = Polyethylene S = Silicone T = Teflon® V = Viton®