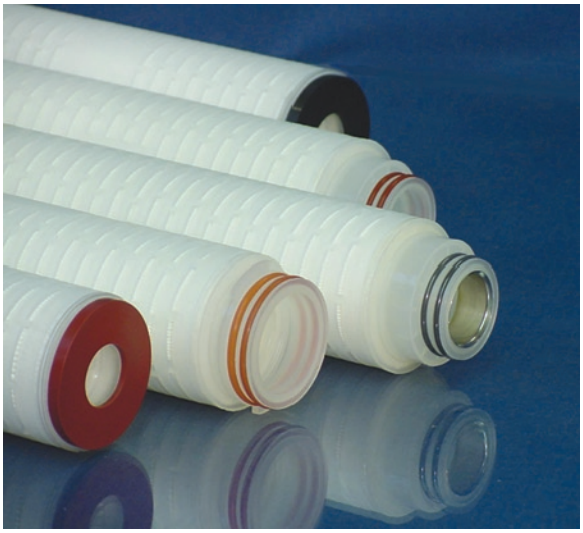
SHELCO FILTERS



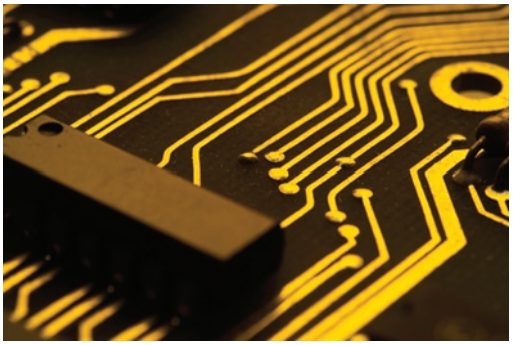
MicroVantage™ MA Series - Electronic Grade

Polyethersulfone, Polypropylene and Nylon Membrane Filter Elements

Shelco's new MicroVantage™ pleated membrane cartridges are designed to meet the high standards of the electronic industry. These cartridges are manufactured to the most stringent production standards making them the new benchmark of the industry. Manufactured in an ISO 9002 environment, each electronic grade cartridge has its own lot code for traceability and comes with a certificate of quality assurance. Each operation including assembly, testing, cleaning, drying and packaging is done in an appropriately rated and certified clean room.

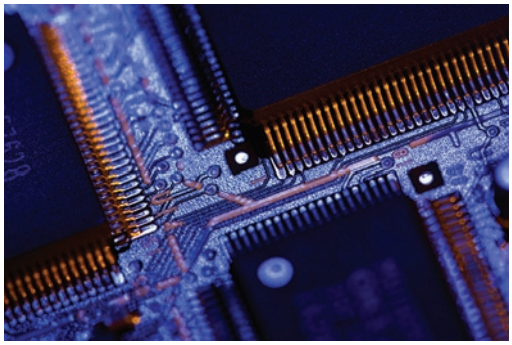
Features

- The MicroVantage™ Electronic Grade Series is available in a wide range of pore sizes.
- Each cartridge is pulse power flushed until the rinse effluent reaches 17+ megohm-cm and less than 3ppb TOC.
- All Electronic Grade cartridges are validated using modified HIMA protocols at a challenge level of 10^6 organisms per cm^2 of filter media. (0.22µm challenged with Brevundimonas diminuta) (0.45 challenged with Serratia marscecens) (0.65 challenged with Saccharomyces cerevisiae)
- Cartridges are designed for maximum throughput and particle retention at the lowest pressure drop.
- Polyethersulfone, Nylon, and Polypropylene construction offers a wide range of compatability.
- Each cartridge is individually tested for integrity and is absolute at the rated pore size.
- Each cartridge is validated to pass USP class 6 Toxicology extractable tests for plastics.



Applications

DI Water/Final Filtration
Solvents
Rinse Stations
Ultrapure Chemicals
Acids & Bases
Etchants
Vent/Process Air



Media Definitions

PES	Asymmetric polyethersulfone membrane is designed to meet the special needs of the electronics and high purity chemical industries. **PES** membrane cartridges are resistant to most acids, bases, alcohols, DI water, high temperature water and capable of handling strong sanitization agents. **Sanitization:** Industry standard concentrations of hydrogen peroxide, paracetic acid, sodium hypochlorite and other selected chemicals are designed to extend the life of the cartridge. Excellent choice for its flow and low extractables in final filtration of DI water.
NYLON	Nylon is particularly suited for DI water, alcohols, esters, ethers, ketones and process water filtration. Nylon does not tolerate heavy concentrations of common sanitization agents. Consult factory to determine if your chemical sanitization protocol can be used.
POLY	Polypropylene membrane cartridges are suited for acids, bases, alcohols, solvents, etchants and photoresists. Also ideal for compressed air, tank ventilation and gases. Consult factory for proper sizing in air or gas applications.(Hydrophobic membrane) **Airflow: 0.1** = (22 SCFM/psid/10 inch cartridge length) **0.2** = (32 SCFM/psid/10 inch cartridge length)

Product Specifications

Pore Size Retention Ratings

Polyethersulfone available in 0.03, 0.1, 0.22, 0.45, 0.65, 0.8, 1.0, 1.2 Microns
Polypropylene available in 0.1 and 0.22 pore sizes only
Nylon available in 0.03, 0.1, 0.22, 0.45, 0.65 micron

Materials of Construction

Filtration Media:	Polyethersulfone	Nylon	Polypropylene
Filtration Media Support:	Polypropylene	Polypropylene	Polypropylene
End Caps:	Polypropylene	Polypropylene	Polypropylene
Center Core:	Polypropylene	Polypropylene	Polypropylene
Outer Support Cage:	Polypropylene	Polypropylene	Polypropylene
Method of Construction:	Thermally Bonded	Thermally Bonded	Thermally Bonded
Gaskets and O-Rings:	Buna, Viton, Silicone, Ethylene Propylene, Teflon Encapsulated Viton		

Sterilization: MAS & MAN ONLY

Filtered Hot Water:	90ºC
Autoclave:	127ºC, 30 min, multiple cycles
In-Line Steam:	135ºC, 30 min, multiple cycles

Chemical Sanitation protocols designed to extend the useful life of the cartridge are available from the factory.

Sterilization: MAP ONLY

Filtered Hot Water:	90ºC

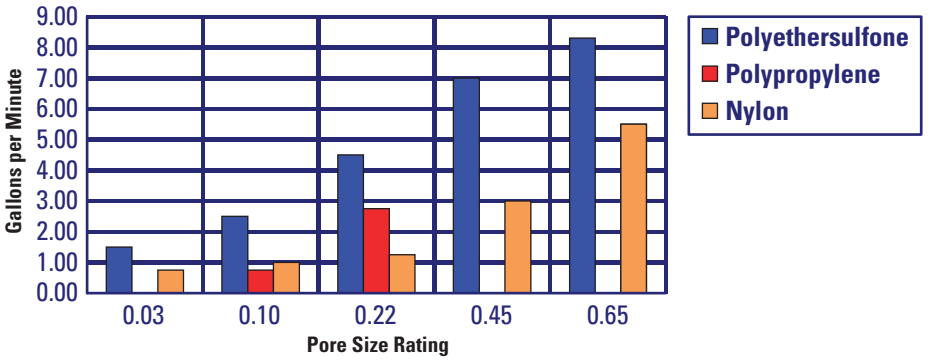
Maximum Differential Pressures

Forward:	50 psi (3.4 bar) at 20ºC
Reverse:	40 psi (2.7 bar) at 20ºC

Integrity Testing: E Grade

Pore Size	Air Diffusion Rate
0.03µm	≤ 30 cc/min @ 60 PSI
0.1µm	≤ 30 cc/min @ 48 PSI
0.1µm MAP	≤ 30 cc/min @ 40 PSI
0.22µm	≤ 30 cc/min @ 35 PSI
0.45µm	≤ 30 cc/min @ 20 PSI
0.65µm	≤ 30 cc/min @ 15 PSI
0.8µm	≤ 30 cc/min @ 12 PSI
1.0µm	≤ 30 cc/min @ 8 PSI

Per 10" Length - Water Wetted Membrane



This chart represents typical water flow @ 1 PSID per 10" cartridge length. The test fluid is water at ambient temperature. Extrapolation for multiple elements tends to be linear, but as flows increase the ΔP of the housing becomes more apparent.

ORDERING GUIDE

MAS	0.22	- 10	S3	S	E	S
Product Code	Pore Size	Length	End Cap Configuration	Gasket/O-Ring	Grade	Insert
MAN = Nylon	0.03	5 = 4 7/8"	S1 = DOE w/ Flat Gaskets	B = Buna	Blank = General	Blank = None
MAP = Polyproylene	0.1	975 = 9 3/4"	S3 = 222 w/Fin End	E = EPR	B = Beverage	S = Stainless
MAS = Polyethersulfone	0.22	10 = 9 7/8"	S4 = 222 w/Flat End	S = Silicone	E = Electronic	Steel
	0.45	20 = 20"	S5 = 226 w/Fin End	V = Viton	P = Pharmaceutical	
	0.65	30 = 30"	S6 = 226 w/Flat End	T = Teflon		
	0.8	40 = 40"	S7 = *Internal O-Ring w/Recessed Plug	Encapsulated		
	1.0		S9 = *Internal O-Ring Both Ends	Viton		
	1.2		S10 = 222 w/Recessed Plug			
			S11 = SOE Flat w/Recessed Plug			
			S13 = 020 O-Ring			
			S20 = 223/Flat End			

*Choose O-Ring Size: 119, 120 or 213 available. Please add to end of part number. Example: MAS0.2-10S7SE-213

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