

HyperGuard U Pleated Cartridges Polyethersulfone Membrane Filters



HyperGuard U cartridge is a precision filter specifically constructed to provide high flow rate and retention. The pleated filter medium is modified polyethersulfone hydrophilic membrane specifically developed for rigorous operating conditions in many filtration applications.

HyperGuard U cartridge is designed for final filtration when absolute particle removal is required, or prefiltration where highly fine particle removal is desired to protect the final filter.

During manufacturing process, each **HyperGuard U** cartridge is flushed with ultrapure water under controlled conditions to provide optimum cleanliness, and integrity tested to assure the product quality.

HyperGuard U cartridge is compatible with autoclave and in-line steam sterilization, as well as chemical sanitization methods that make it an ideal microporous membrane cartridge for various applications.

Performance Advantages

- Constructed of only two materials, i.e., modified polyethersulfone and polypropylene with no adhesives to ensure lower extractables.
- All components meet USP Class VI-121° Plastics Tests for biosafety
- Provide high particle retention while maintaining high flow rate
- Enhanced porosity of polyethersulfone membrane as a filter medium in the cartridge results in low differential pressures and extended filter life
- Offer great resistance to severe sanitizing agents such as hot water, concentrated hydrogen peroxides, and active chloride compounds
- 100% integrity tested during manufacture to assure product reliability and quality

Typical Applications

<i>Pharmaceuticals and Biologicals:</i>	Parenterals, Ophthalmics, Oral and topical medicines, Serum, Tissue Wash and rinse water, Diagnostic reagents, Buffers, Vaccines, Bottle and vial washers, Dry compressed gases, Make-up water
<i>Food and Beverages:</i>	Alcohols, Mineral water, DI and RO water, Dry compressed gases, Juices and other potable liquids
<i>Bulk Chemicals:</i>	Selected acids, Diluted bases, Alcohols
<i>Inks:</i>	Water and alcohol based inks
<i>Electronics:</i>	Photoresists, Acids, Etchants, Bases, Solvents, Electroless nickel plating solutions, Pretreatment of DI and RO water

Specifications

Materials of Construction

Filter Media: Single layer of pleated modified polyethersulfone hydrophilic membrane

Support Material: Polypropylene

Structure Components: Polypropylene

Sealing Technology: Thermal Bonding

Nominal Length

10, 20, 30, and 40 inch (25.4, 50.8, 76.2 and 101.6 cm)

Diameter

2.7 inches (6.9 cm)

Nominal Pore Size

0.03, 0.1, 0.2, 0.45, 0.65, 0.8 and 1.2 um

Typical Effective Filtration Area

7 ft² (0.65 m²) per 10 inch

Maximum Operating Temperature*

90 °C (194 °F) at 30 psid (2.1 bar)

**supported adapters are recommended for applications at elevated temperature over 60 °C*

Sterilization/Sanitization Methods

Chemical: Peracetic acid, chlorinated alkaline products, bleach, sulfur dioxide, and hydrogen peroxide at typical sanitization concentrations and temperatures

Hot Water: 88 °C at 5 psid (0.34 bar)

Autoclave: 121 °C (250 °F) for 30 minutes up to 6 cycles

In-line Steam: 140 °C (284 °F) for 60 minutes at 2 psid (0.14 bar) up to 3 cycles

Maximum Differential Forward Pressure

0.03, 0.1, 0.2, 0.45 and 0.65 um: 60 psid (4.1 bar) at ambient temperature

0.8 and 1.2 um: 50 psid (3.4 bar) at ambient temperature

Maximum Differential Back Pressure

15 psid (1.0 bar) at ambient temperature

Maximum Continuous Pressure

Limited by housing

Recommended Integrity Tests

Minimum Bubble Point

0.03 um: 40 psi (2.8 bar) in ethanol
 0.1 um: 28 psi (2.0 bar) in ethanol
 0.2 um: 49 psi (3.4 bar) in water
 0.45 um: 32 psi (2.3 bar) in water
 0.65 um: 22 psi (1.5 bar) in water
 0.8 um: 12 psi (0.8 bar) in water
 1.2 um: 6 psi (0.4 bar) in water

Typical Liquid Flow Rate

0.03 um: 0.3 gpm/psid/10 inch length (1.7 lpm/0.1 bar/25.4 cm length)
 0.1 um: 0.6 gpm/psid/10 inch length (3.3 lpm/0.1 bar/25.4 cm length)
 0.2 um: 3 gpm/psid/10 inch length (16.5 lpm/0.1 bar/25.4 cm length)
 0.45 um: 5.2 gpm/psid/10 inch length (28.5 lpm/0.1 bar/25.4 cm length)
 0.65 um: 6.8 gpm/psid/10 inch length (37.4 lpm/0.1 bar/25.4 cm length)
 0.8 um: 10 gpm/psid/10 inch length (54.9 lpm/0.1 bar/25.4 cm length)
 1.2 um: 13 gpm/psid/10 inch length (71.5 lpm/0.1 bar/25.4 cm length)

Oxidizable Substances

Filtrate meets USP XXII requirements for purified water with <1 L flush after autoclaving

Biosafety

All components meet USP Class VI-121° C Plastics Tests

Endotoxin Level

< 0.5 EU/mL utilizing Limulus Amoebocyte Lysate (LAL) test

Non-Volatile Residue

< 50 ppm per 10 inch

Resistivity Recovery to 18 Megaohm.cm

35 gallons (133 L)

Ordering Information

Model	Grade	Micron Rating	Cartridge Length	Adapter Configuration	Seal Material
HG	U: Ultrapure	003=0.03 um	1=10 inch	0=DOE	E=EPDM
		010=0.1 um	2=20 inch	3=SOE, 222/Flat	S=Silicon
		020=0.2 um	3=30 inch	7=SOE, 226/Fin	V=Viton
		045=0.45 um	4=40 inch	8=SOE, 222/Fin	
		065=0.65 um			
		080=0.8 um			
		120=1.2 um			