ABSOLUTE RATED POLYETHER-SULFONE PLEATED MEMBRANE FILTER CARTRIDGE

KAREI™ PES Series

DESCRIPTIONS

PES cartridges are made of casted Sulfonated PES (Polyether-Sulfone from Germany) polymers. It offers an absolute membrane filtration (β=5,000) with fixed absolute pore size from 0.04 to 1.2 um.

Meet USP Class VI-121°C Plastic reactivity test for Biosafety and comply with FDA Code Of Federal Regulation Title 21 for food and beverage use.

PES is designed for final filtration where absolute retention is required or pre-filtration to remove extremely fine particles and removal of bacteria desires to protect downstream system.

Highly recommended quality product for various applications including Food & Beverage Industries, Process water treatment and parts washing in Micro-Electronic & Hard disc, Bio-Technology and Pharmaceutical Plants, etc.

Inherently hydrophilic and the high asymmetrical fixed pore structure of PES membrane offers absolute filtration, high dirt holding capacity, lower pressure drop and increasing the filtration performance to give higher filtrate throughputs and higher flow rates than symmetrical membrane.

PES and PP construction provides excellent chemical compatibility, pH 1-14.

Thermally bonded without surfactants, adhesives and binders eliminate extractable.

Low protein binding and minimizes valuable product absorption.

Available in 3 grades: Standard Industries (S), Beverage & Micro-Electronic Industries (BM) & Pharmaceutical & Biological Industries (PB). (Double layer and sterilized)

Pre-rinsed with 18MΩ-cm D.I. water (BM & PB grades) and

SPECIFICATIONS

ABSOLUTE MICRON RATING
0.04, 0.1, 0.2, 0.45, 0.65, 0.8 & 1.2 micron
Note: 0.04 micron is available for Grade BM & PB only.

FILTRATION AREA/ 10" FILTER CARTRIDGE
i) Grade S : 0.58 m^2
ii) Grade BM : 0.60 m^2
iii) Grade PB : 0.55 to 0.60 m^2

NOMINAL LENGTH
125, 250, 500, 750, 1000 mm or
127, 254, 508, 762, 1016 mm

NOMINAL INNER/OUTER DIAMETER (ID/OD)
Standard : 30/ 68 mm or BB : 28/ 114 mm
Note: 28mm inner diameter is available upon request.

MEDIA MATERIAL
Hydrophilic High Asymmetric Polyether-Sulfone Membrane

SUPPORTING MATERIAL
Polypropylene Micro-Denier Fibers

INNER CORE, CAGE AND END ADAPTOR MATERIAL
Standard : High Strength Pure Polypropylene
RPG : Reinforced Polypropylene With Glass
HPE : High Density Polyethylene

SEALING TECHNIQUE
Thermal Bonding

END STYLE
1) DOE : Double Opened End
2) SOE : Single Opened End
i) S2C : SOE, 222 O-Ring With Closed End
ii) S2F : SOE, 222 O-Ring With Finned End
iii) S6C : SOE, 226 O-Ring With Closed End
iv) S6F : SOE, 226 O-Ring With Finned End
Note: Extended adaptor for SOE filter cartridge is available upon request.

GASKET AND O-RING MATERIAL
1) Standard : EPDM 2) V : Viton
3) S : Silicone 4) T : Teflon
5) FEP : Teflon Encapsulated Viton

OPERATING CONDITIONS

MAX. FORWARD DIFFERENTIAL PRESSURE
4.1 Bar (60 PSI) at 25°C

MAX. REVERSE DIFFERENTIAL PRESSURE
2.1 Bar (30 PSI) At 25°C

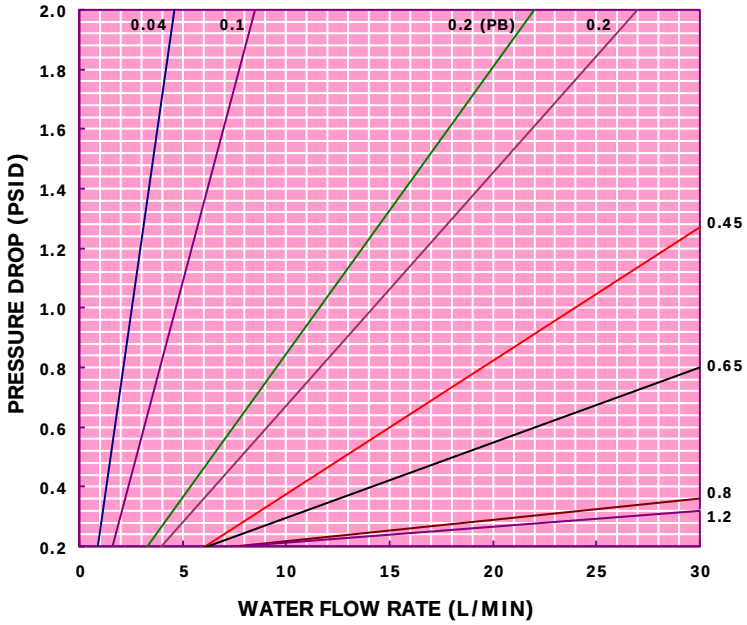
MAX. OPERATING TEMPERATURE
80°C at 4.1 Bar (60 PSI)

CHANGE OUT DIFFERENTIAL PRESSURE
2.4 Bar (35 PSID)

TYPICAL NON-VOLATILE RESIDUE (NVR):
Less than 40 ppm per 10" cartridge.

TYPICAL 18MΩ-cm (BACKGROUND) RESISTIVITY RECOVERY:
Less than 120 Liter.

WATER PRESSURE DROP (10 INCHES CARTRIDGE)-PES



Air Temperature: 24 °C, Inlet Pressure: 15 PSID (1 Bar)

STERLILIZATION AND SANITIZATION METHODS

Chemicals	Peracetic acid, chlorinated alkaline products, bleach, sulfur dioxide (SO_2) and hydrogen peroxide at typical sanitization temperatures and concentrations.
Autoclave	125 °C (257°F) for 30-45 minutes at maximum differential pressure of 7 PSI (0.5 Bar).
In-line Stream	140 °C (284°F) for 45-60 minutes at 2 PSID (0.14 Bar) ΔP.
Hot Water	88 °C (190°F) at 5 PSI (0.3 Bar) up to 50 minutes.

KAREI-PES can be subjected to multiple sterilization cycles while maintain its integrity.

TYPICAL APPLICATIONS

General Industries	Beverage & Micro-Electronic Industries	Pharmaceutical & Biological Industries
Inks And Dyes. Process Water. Serums And Tissue Culture Media. Acids, Bases And Oxidants. Pharmaceutical preparation.	Wine, Juices, Potable liquid, Alcohols, Mineral water, Edible oils, Syrups, etc. Final filtration in DI and RO water treatment, Etching Solution, Acids, Etchants, Oxidants, Bases, Solvents. Tray and parts washing.	Final Filtration Of Drugs, Biological And Pure Water For Dialysis. Final Filtration Of Water For Injection. LVPs, SVPs. Tissue Culture Media.

INTEGRITY TEST – MINIMUM BUBBLE POINT

Micron		0.04	0.1	0.2	0.45	0.65	0.8	1.2
Measured		In IPA			In Water			
Bar	**Mean**	2.80	2.06	4.30	3.00	1.90	1.45	1.05
	Range (±)	0.45	0.21	0.54	0.25	0.42	0.25	0.25
PSI	**Mean**	40.6	29.9	62.4	43.5	27.6	21.0	15.2
	Range (±)	6.5	3.0	7.8	3.6	6.1	3.6	3.6
Minimum Water Flux (mL/Min cm² bar)		>4.0	>10	>35	>60	>90	>180	>260
Typical Water Flux mL/Min cm² bar		13.5	21.0	42.5	80	140	270	360
Log Retention Value Of Bacteria		-	-	7	7	7	-	-
Bacteria		-	-	Brevundimonas Diminuta	Serratia Marcescens	Sacch. Cerevisiae	-	-

CHEMICAL COMPATIBILITY GUIDE

Acids	Acetic Acid, Glacial	N	**Glycol**	Ethylene Glycol	R
	Acetic Acid, 90%	-		Grycerine	R
	Acetic Acid, 30%	-		Propylene Glycol	R
	Boric Acid	-	**Hydrocarbons**	Benzene	L
	Chromic Acid, Conc.	-		Toluene	L
	Hydrochloric Acid, Conc.	R		Xylene	L
	Hydrochloric Acid, 6N	-		Carbon Tetrachloride	L
	Hydroflouric Acid, 6N	-		Chloroform	N
	Nitric Acid, Conc.	N		Freon	R
	Phosphoric Acid, Conc.	N		Methylene Chlorine	N
	Sulfuric Acid, Conc.	N		Tetrachloroethylene (Perchloroethylene)	L
	Sulfuric Acid, 6N.	-		Trichloroethylene	L
Bases	Ammonium Hydroxide, 3N.	R	**Ketones**	Acetone	N
	Ammonium Hydroxide, 6N.	R		Cyclohexanone	N
	Potassium Hydroxide, 3N.	R		Methyl Ethyl Ketone	-
	Sodium Hydroxide, 3N.	R		Methyl Isobutyl Ketone	N
	Sodium Hydroxide, 6N.	R	**Oils**	Lubrication Oil	N
Alcohols	Amyl	R		Cottonseed Oil	-
	Benzyl	R		Peanut Oil	-
	Butyl	R		Sesame oil	R
	Ethyl	R		White Petroleum	-
	Isopropyl	R	**Organic Solvents**	Dimethyl Formamide	N
	Methyl	R		Dimethyl Sulfoxide	N
Esters	Amyl Acetate	L		Gasoline	R
	Butyl Acetate	L		Phenol Liquid	N
	Ethyl Acetate	L		Pyridine	N
	Methyl Acetate	L		Turpentine	R
Ethers	Diethyl Ether	-	**Gases**	Helium	R
	Dioxane	R		Hydrogen	R
				Methane	R
	Tetrahydrofuran	-		Nitrogen	R
				Ozone	LR

R–Recommended L–Limited Recommended N–Not Recommended –Insufficient

This chemical compatibility table is intended for use as a guide only.
Recommendations are based upon static condition of 48 hours at 25°C and 1.0 atmosphere pressure.

ORDERING GUIDE

KAREI – PES – [A] – [B] – [C] – [D] – [E] – [F]

[A] MICRON	[B] LENGTH	[C] END STYLE	[D] GASKET/ O-RING MATERIAL	[E] PARTS MATERIAL	[F] TYPE
004 : 0.04 01 : 0.1 02 : 0.2 04 : 0.45 06 : 0.65 08 : 0.8 1 : 1.2	125, 250, 500, 750, 1000 mm 127, 254, 508, 762, 1016 mm	None : DOE S2C : 222 & Closed End S2F : 222 & Finned End S6C : 226 & Closed End S6F : 226 & Finned End NOTE : For SOE with extended adaptor, please include the code of 'EX'	None : EPDM V : Viton S : Silicone T : Teflon FEP : Teflon Encapsulated Viton NOTE : For SOE with stainless steel reinforcement ring, please include the code of 'R'	None : PP RPG : Reinforced PP With Glass HPE : High Density PE	None: Standard BB: 28/114mm

EXAMPLE:

1) KAREI-PES-01-250-DOE (PES, 0.1 um, 250mm, DOE, EPDM Gasket, PP Parts Material)
2) KAREI-PES-01-250-S2C-EX-VR-RPG (PES, 0.1 um, 250mm, SOE, 222 Viton O-Ring With Extended Adaptor and Stainless Steel Reinforcement Ring, Closed End, Reinforced PP With Glass Parts Material)