



NanoCeram® & NanoCeram-PAC™ “SOE” Series

Double “O” Ring Pleated Filter Cartridges

Features and Benefits

Thermally bonded blend of microglass fibers & cellulose infused with nanoalumina fibers in a non-woven matrix creates an electropositively-charged depth filter media. Argonide’s line of SOE cartridges use our NanoCeram® or NanoCeram-PAC™ filter media which are then assembled with 100% polypropylene materials and sealed using the latest thermal bonding equipment. Each of these SOE cartridges is manufactured with 100% FDA-compliant materials. NanoCeram® technology offers a unique combination of efficiency, capacity, flowrate & low pressure drop at levels unmatched in today’s filtration marketplace. These cartridges are designed for use in most applications where absolute rated pleated filtration is needed with the added assurance of an absolute seal between cartridge and housing; and are available with flat, fin or spring endcaps with 222 or 226 double o-rings.

- Silt Density Index (SDI): $\leq 0.8 \pm 0.1$
- Turbidity Reduction: < 0.01 NTU until terminal pressure drop (35psi)
- Low ΔP : < 1.5 psi @ 4gpm (Part No. SOE2.5-10)
- Efficiency: $>99.9\%$ reduction of 0.2μ particulate (monodispersed latex spheres)
- Flow Rate: $5\text{mL}/\text{cm}^2/\text{min}$ @ 4gpm (Part No. SOE2.5-10)
- Dirt Holding Capacity (DHC): $572\text{ mg}/\text{in}^2$ (A2 Fine Test Dust)
- Cyst Retention: > 5 LRV
- Bacteria (*Klebsiella terrigena*): > 5 LRV
- Temperature Range: $39 - 190^\circ\text{ F}$ ($4 - 88^\circ\text{ C}$)
- Maximum Pressure: 70 psi (4.83 bar)
- Effective pH Range: 5 - 10



Applications

Primary filtration in lieu of ultraporous and microporous membranes

Prefiltration and/or Polishing for:

- | | | |
|--------------------------|--------------------|--------------|
| • Reverse Osmosis (R.O.) | • Ultraviolet (UV) | • Mixed Bed |
| • Ultrafiltration | • Ozonation | • Carbon Bed |
| • Microfiltration | • Chlorination | |

Food, Beverage & Bottled Water

Pharmaceutical & Biomedical

Cosmetics & Personal Care

Microelectronics

Power Generation

Machining (including EDM)



Each NanoCeram® pleated filter cartridge is designed to satisfy the most difficult requirements in water treatment. By using the scientific principal of electropositive attraction/capture, NanoCeram® technology leads to a rapid and highly efficient adsorption of virtually all particle sizes. NanoCeram®’s media has a high capacity for particles as large as tens of microns or as small as a few nanometers. Each NanoCeram® Filter Cartridge exhibits a rating of 0.2μ . . . a rating typically associated with ultraporous membranes. Yet NanoCeram® flow rates are hundreds of times greater than such membranes.

NanoCeram[®] SOE Series:

Part No.		SOE2.5-10 2.5" x 10"	SOE2.5-20 2.5" x 20"	SOE2.5-30 2.5" x 30"	SOE2.5-40 2.5" x 40"
Filter Surface Area	(in ²)	450	960	1,500	2,000
	(ft ²)	3.1	6.7	10.5	14
	(cm ²)	2,900	6,200	9,700	13,000
	(m ²)	0.29	0.62	0.97	1.3
Electroadsorptive (active) Surface Area	(in ²)	1.98 x 10 ⁷	4.22 x 10 ⁷	6.6 x 10 ⁷	8.8 x 10 ⁷
	(ft ²)	137,500	293,000	460,000	613,000
	(cm ²)	1.28 x 10 ⁸	2.73 x 10 ⁸	4.26 x 10 ⁸	5.67 x 10 ⁸
	(m ²)	12,800	27,300	42,600	56,700
Diameter x Length (Nominal)	(in)	2.7 x 10	2.7 x 20	2.7 x 30	2.7 x 40
	(cm)	7 x 25.4	7 x 50.8	7 x 76.2	7 x 101.6
Suggested Flow Rate	(GPM)	4	8	12	16
	(LPM)	15	30	45	60
Peak Flow Rate *	(GPM)	10	20	30	40
	(LPM)	38	76	114	152

*Peak Flow Rate based on initial flow using new filter cartridge and clean water during laboratory testing.

Construction Materials

Filtration Media	NanoCeram / NanoCeram-PAC
Support Media	Polypropylene
End Caps	Polypropylene
Center Core	Polypropylene
Outer Support Cage	Polypropylene
O-rings/Gaskets	Buna, Viton, EPDM, Silicone, Teflon [®] Encapsulated Viton

Turbidity Reduction & Silt Density Index (SDI₃₀):

Manufacturer	Type	Flow Rate (GPM)	Type of water	Turbidity, NTU		SDI ₃₀ ^a
				in	out	
Argonide (NanoCeram [®])	SOE2.5-10 2.5" x 10"	2	Municipal tap water	0.05	<0.01	0.8 ± 0.1 ^d
"A"	1μ Absolute 2.5" x 10"	4	A2 dust ^b in RO water	239.00	60.00	ND ^e
			Municipal tap water	0.54	0.10	4.4 ± 0.2 ^f
	0.35μ Standard 2.5" x 10"	4	A2 dust ^b in RO water	239.00	55.00	ND ^e
			Municipal tap water	0.57	0.14	4.6 ± 0.2 ^f
"B"	1μ Standard 2.5" x 20"	4	Municipal tap water	1.3 ± 0.1 ^g	0.4 ± 0.1 ^g	N/A
	1μ Absolute 2.5" x 10"	4	A2 dust ^b in RO water	243.00	23.00	ND ^e
			Municipal tap water	1.3 ± 0.3 ^g	<0.01 ^h	5.5 ± 0.2 ^f
	5μ Standard 2.5" x 20"	4	Municipal tap water	1.5 ± 0.7 ^g	1.1 ± 0.4 ^g	ND ^e
"C" *	0.1μ Hollow Fiber Membrane 6.5" x 85" Module	22	N/A	N/A	<0.08	< 2.0 - 3.0

* Manufacturer's published specifications.

Notes:

- Silt Density Index (SDI₃₀);
- ISO 121030-1, A2 Fine Test Dust available from PTI technology Inc.;
- Average of six measurements;
- Average of four measurements;
- Not done since turbidity of filtered water is unacceptable high (expected to be less than 1 NTU);
- Average of three measurements;
- Average over 3 hrs test;
- During first 30 minutes of run;
- After 30 minutes of continuous water run.