PRODUCT BROCHURE

ASPIDA Membrane Filtration

KOVALUS Separation Solutions™

ASPIDA Hollow Fiber Membrane

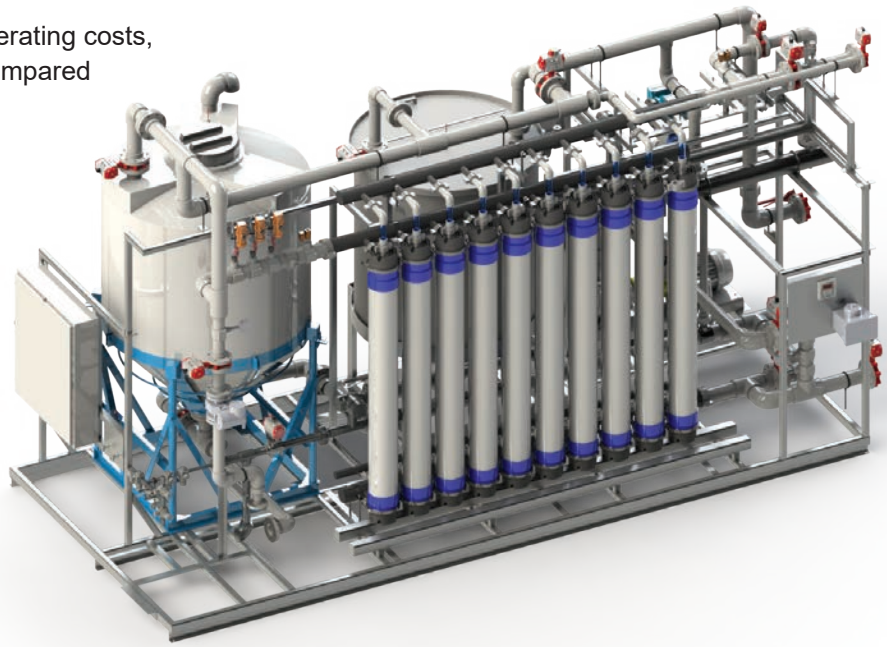
The ASPIDA™ membrane is constructed using a proprietary technology that results in a strong, chemically tolerant, and highly permeable PVDF membrane product. Our ASPIDA membrane is isotropic, featuring the same mechanical properties when measured in all directions throughout the membrane. This leads to a higher-integrity product with greater durability and robustness compared to traditional membranes, which are more likely to experience fiber breakage and have lower chemical tolerance.

Primary Applications

- **Inlet industrial and surface water treatment:** Achieve high recoveries and remove suspended and colloidal solids while reducing footprint
- **Tertiary wastewater treatment and effluent polishing:** Produce reuse quality effluent even with variable influent quality
- **Reverse Osmosis pretreatment:** Extend RO membrane life, reduce operating costs, and significantly decrease footprint compared with conventional pretreatment

FEATURES & BENEFITS

- High mechanical strength for fewer fiber breaks and overall longer membrane life
- High solids tolerance due to outside-in construction
- Small footprint due to high packing density
- Low operating costs due to reduced chemical cleaning and trans-membrane pressure (TMP)
- Excellent chemical resistance



Pre-engineered Standard Systems for Water & Wastewater Treatment

ASPIDA™ systems are pre-engineered ultrafiltration (UF) package plants and modular systems. With individual unit capacities ranging from 80,000 GPD up to 2,170,000 GPD (about 303 – 8,200 m^3/day), the ASPIDA system is designed for both municipal and industrial applications, including wastewater and surface water applications with peak feed TSS concentrations up to 100 mg/L.

Featuring our KSS pressurized ASPIDA modules, these skid-mounted systems offer customers a complete and cost-effective solution. The ASPIDA membrane consistently produces high-quality effluent with TSS concentrations <5 mg/L.

System Benefits

- Optimized design for application
- Simple operation
- Compact footprint
- Easily expandable
- Common ancillary equipment for multi-unit trains
- Flexible layout
- Turnkey solution
- Single-source supply
- Minimal civil works required
- Fast delivery and installation

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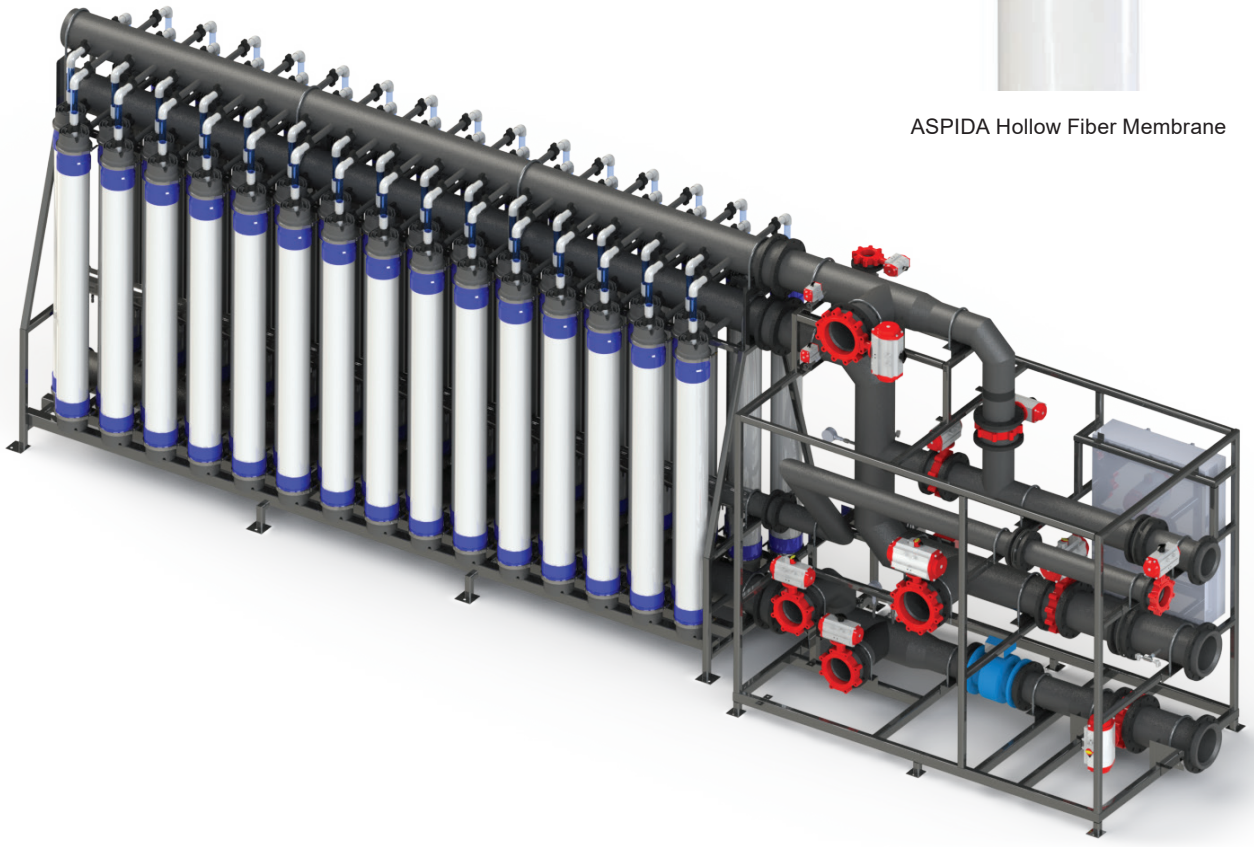

Standard System Data

Features

		ASPIDA™ A-5P & A-10P Package Systems	ASPIDA A-18, A-32, & A-48 Modular Systems
Pre-Treatment	Fine Screening	X	X
	Chemical Dosing	O	O
	Feed Equipment	O	O
	Feed Pump VFD	O	O
Pre-Treatment	Membranes	X	X
	Membrane Rack	X	X
	Membrane Blowers	X	X
	Backflush Pump	X	X
	Filtration System Valves	X	X
	Filtration System Instrumentation	X	X
	CIP System	X	X
	Permeate/BF Tank	X	O
	Train Redundancy	O	O
	Backflush Pump VFD	O	O
Ancillary and Post-Treatment	Neutralization Equipment	O	O
	Duty-Standby CIP Pump		O
	Skidded Ancillary Equipment		O
	Duty-Standby Backflush Pump		O

X: Included, O: Optional

System Models

Model	System Capacity*			
	Wastewater		Surface Water	
	1,000 Gal/Day	m^3/Day	1,000 Gal/Day	m^3/Day
Package Systems				
A-5P	75	280	220	850
A-10P	150	565	450	1,700
Modular Systems				
A-18**	265	1,000	800	3,040
A-32**	470	1,780	1,430	5,400
A-48**	705	2,670	2,140	8,100

* Final system sizing is application dependent and based on various design criteria, including, but not limited to, influent temperature and TOC/TSS concentration. Model number denotes maximum number of cartridges per skid.

** Can be combined in up to 8 units per train with common ancillary equipment, depending on feed water quality.

Installation

Model	Footprint	Electrical Power (460V, 60Hz)	Feed	Piping Connections	
				Backflush Waste	Permeate
Package Systems (standard equipment)					
A-5P	8’ x 15.5’ / 2.4m x 4.7m	15 kw	3” / DN80	3” / DN80	3” / DN80
A-10P	10’ x 21.5’ / 3.1m x 6.6m	20 kw	4” / DN100	4” / DN100	4” / DN100
Modular Systems (standard equipment)					
A-18	5’ x 14’ / 1.5m x 4.3m	50 kw	6” / DN150	6” / DN150	6” / DN150
A-32	5’ x 23’ / 1.5m x 7m	90 kw	8” / DN200	8” / DN200	8” / DN200
A-48	5’ x 27’ / 1.5m x 8.2m	120 kw	10” / DN250	10” / DN250	10” / DN250

All skids are pre-wired with local disconnects. System assembly and wiring to be conducted by a qualified contractor. KSS to provide installation support and startup services. All non-package systems do not include interconnecting piping to ancillary equipment. Footprints noted are for individual stages and do not include cartridge removal clearance areas. Common CIP & backflush skid sizes are dependent on size and quantity of trains.

KOVALUS Separation Solutions™

Separation Technologies for a Better Future™

For complete contact information and listing of our global locations, visit www.kovalus.com