EnviQ® XL

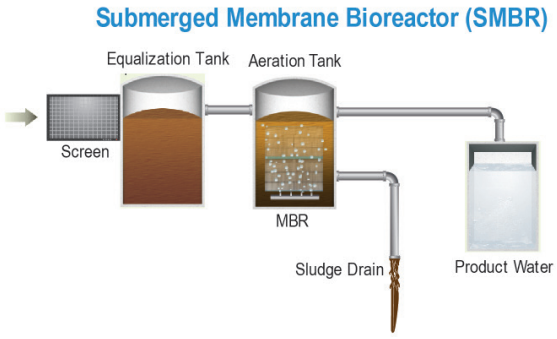
Submerged Ultrafiltration Membranes

HOW EnviQ WORKS

QUA's EnviQ Membranes have been specially designed to improve the ease of operation and maintenance of MBR facilities. The EnviQ membrane has billions of microscopic pores on the surface that form a barrier to impurities, allowing clean water to pass through the pores by using by using gentle suction. EnviQ provides consistent and ultrafiltration quality effluent using a strong and rugged PVDF flat sheet membrane and proprietary diffuser system.

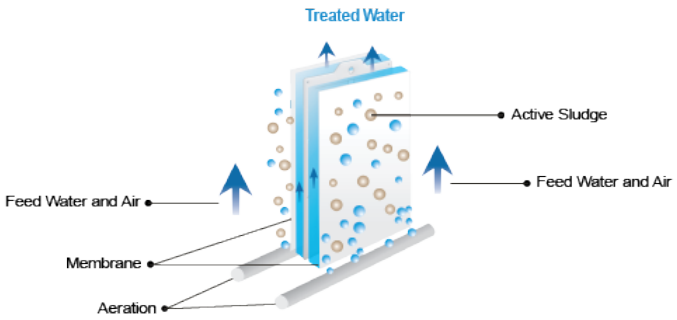
THE TECHNOLOGY OF CHOICE

In addition to simpler operations, EnviQ lowers the total installed cost of biological wastewater treatment and recycle systems as compared to conventional activated sludge processes with tertiary filtration. EnviQ facilitates increased MBR adoption, resulting in more efficient biological treatment, smaller footprint and high quality effluent. The treated water can be used directly, or as feed to a reverse osmosis unit. EnviQ is avaiable in modular construction. This ensures the ease of design as well as maintenance.



EnviQ XL ADVANTAGES

- **Ruggedness of Flat Sheet MBR**
  Well-anchored and self-supporting PVDF flat sheet UF membrane for superior durability
- **Increased Flow with Smaller Footprint**
  Manages larger flows with less space requirements
- **Easy to Assemble and Install**
  Fewer cartridges and internal connections, allowing easier assembly and faster installation at site
- **Optimized Energy Consumption**
  Low air flow requirement and high productivity allow for optimized energy consumption
- **Low Transmembrane Pressure (TMP)**
  Uniform distribution of true ultrafiltration-range membrane pores provides consistently low TMP
- **Reverse Diffusion**
  Reverse diffusion using clean water ensures consistent productivity with stable TMP
- **Simple Rack Type Modular Design**
  Allows easy removal and maintenance of membrane cartridges.
- **No External Frame**
  Provides a "membrane only" surface to minimize biofouling.



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Product Specifications

		EnviQ Model		
		XL-330	XL-440	XL-550
Pore Size		0.04 µ		
Membrane Type		Hydrophilic PVDF, Flat Outside-In type		
Membrane pH Tolerance		2 - 10		
Membrane Temperature Tolerance[1]		5 - 40°C / 41 - 104°F		
Total Membrane Area m^2 (ft^2)		330 (3,552)	440 (4,736)	550 (5,920)
Flow m^3/hr (gpm)	Minimum	3.3 (14.5)	4.4 (19.4)	5.5 (24.2)
	Maximum	9.2 (40.6)	12.3 (54.2)	15.4 (67.8)
Air Flow (m^3/hr)[2]		82.5	110	137.5
Dimensions				
Dimensions	Length mm (in)	1,460 (57.5)	1,460 (57.5)	1,460 (57.5)
	Width mm (in)	1,000 (39.4)	1,330 (52.4)	1,660 (65.4)
	Height mm (in)	2,500 (98.4)	2,500 (98.4)	2,500 (98.4)
Module Weight (Dry) kgs (lbs)		500 (1,102.3)	650 (1,433)	800 (1,763.7)
Connection Flange				
Permeate		ANSI 1″	ANSI 1″	ANSI 1″
Air Diffuser		ANSI 1″	ANSI 1″	ANSI 1″
No. of Air Diffusers		6	8	10
Outer Frame Material		SS-316		
Permeate Header Material		PVC		
Cartridge Connector Material		SS-316		
Air Diffuser Material		EPDM		

[1]The optimal temperature range for the biological active sludge is 20 – 37 °C (68 – 98.6 °F).
[2]Air requirement given is for membrane scrubbing only and does not include air for the biological process.

Technical Information

Operational Parameters	Unit	Range
MLSS	mg/L	3,000 – 15,000
Filtrate Flux Range	lmh / gfd	10 – 28 lmh / 6 – 16.5 gfd[4] (Dependent on feed conditions)
Operating Transmembrane Pressure	mmHg psi	100 mm Hg (Typical) - 200 mm Hg (Maximum) 2.0 psi (Typical) - 4 psi (Maximum)
Backpulse Transmembrane Pressure	mmHg / psi	52 mmHg / 1.0 psi (Maximum)
Backpulse Requirement	N/A	7.5 minutes every 2-4 hours
Operating Time Ratio	N/A	Service time 9.5 minutes, Rest time 0.5 minutes
Operating pH Range	-	5 - 9
Typical Product TSS	mg/L	< 3.0
Typical Product Turbidity	NTU	< 1.0
Cleaning Chemicals		
Maintenance Cleaning[5]	NA	NaOCl (250 ppm as Cl_2) and Citric Acid (1,000 ppm)
Recovery Cleaning[6]	NA	NaOCl (1,000 ppm as Cl_2) and Citric Acid (1,000 ppm)

[4] Please consult QUA for guidance on modified air flow requirements for fluxes greater than 25 lmh (14.7 gfd).
[5]Typically required once a week depending on feed conditions.
[6]Typically required once every 3-4 months depending on feed conditions.