

It's only the tip of the iceberg.

Discover the hidden potential of

FMX

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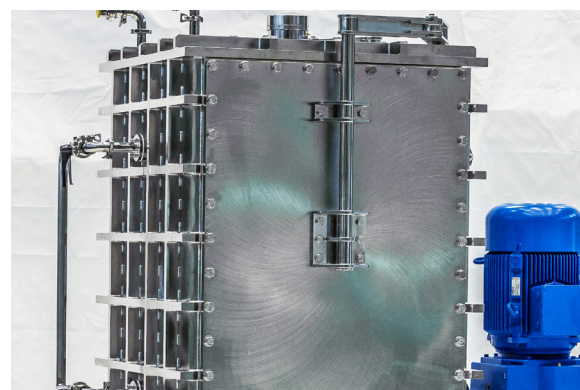
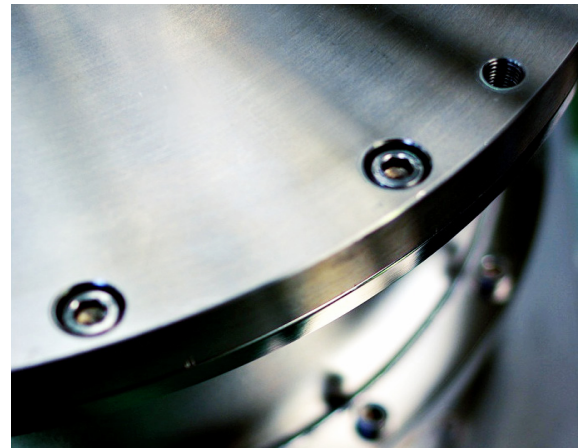
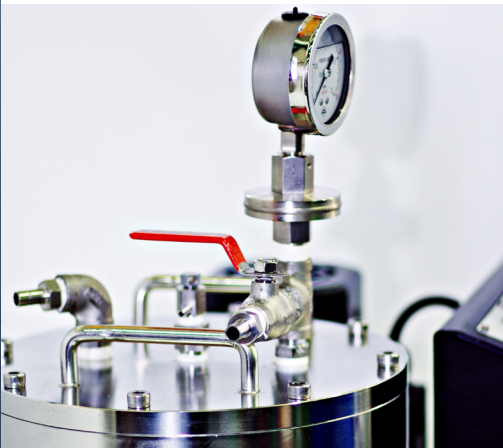
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FMX

Anti-fouling Membrane System



FMX (Anti-fouling Membrane System)

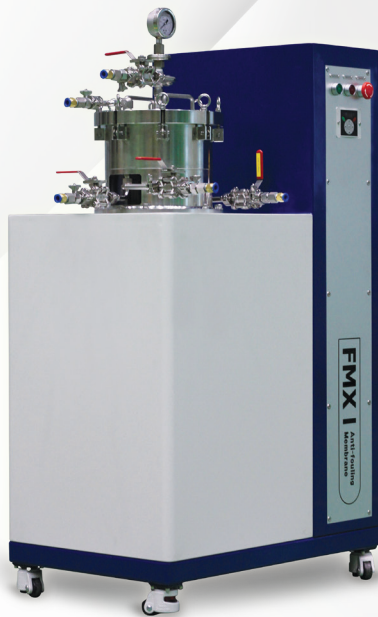
If you are satisfied with your existing membrane system, you are not our target client.

- Are you experiencing fouling leading to lower productivity?
- Do you want to recover higher production yields?
- Are you looking to minimize production downtime and save space by simplifying complex processes?

FMX is a new anti-fouling membrane system for concentrating and isolating TSS and bio-molecules. The innovative FMX technology uses vortices to prevent membrane fouling and can handle high density, high viscosity, and high solids loading applications.

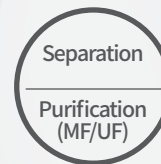
FMX maintains the integrity of its membranes by using patented vortex-generating blades made from specially engineered lightweight plastic resistant to corrosion, chemicals, and extreme temperatures.

The resulting turbulent flow works continuously to prevent the buildup of solids on the membrane surface with minimum energy consumption.



1 Simplify

Cost & Space Savings



2 Save

Process Improvement



Raw Material Reduction



Increased Recovery



Improved Quality

3 Increase Productivity

Extra Benefits



Concentration



Recovery



Short Operation Time

What is FMX?

Membrane Meets Vortex Generator

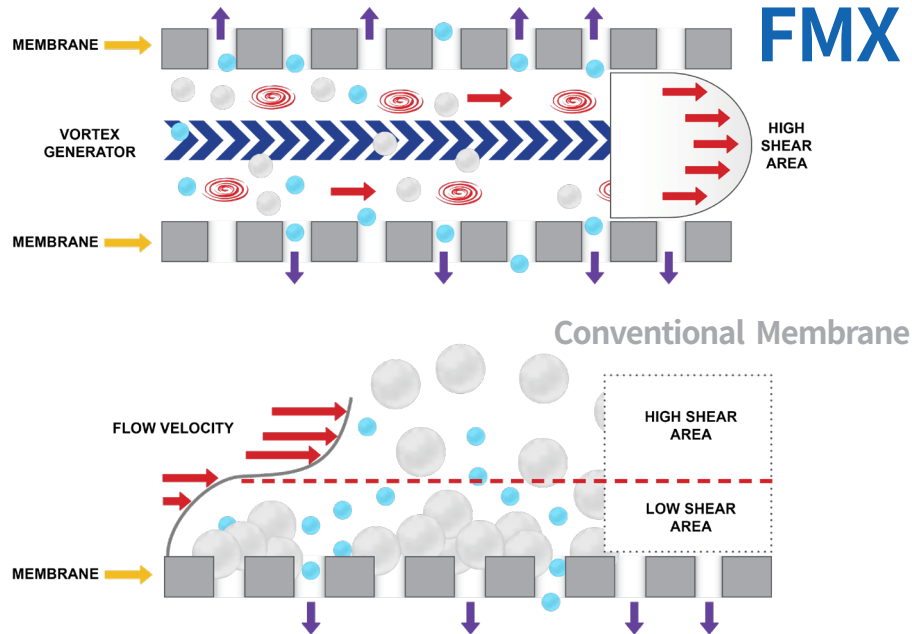
- A revolutionary membrane filtration system that uses a high-speed vortex generator to reduce fouling
- Ideal solution for process dewatering, product recovery, and separation applications
- A full range of models and membranes (MF, UF and NF) are available to satisfy client demands
- Prevents membrane fouling - can handle high total dissolved and suspended solids

Anti-Fouling Technology

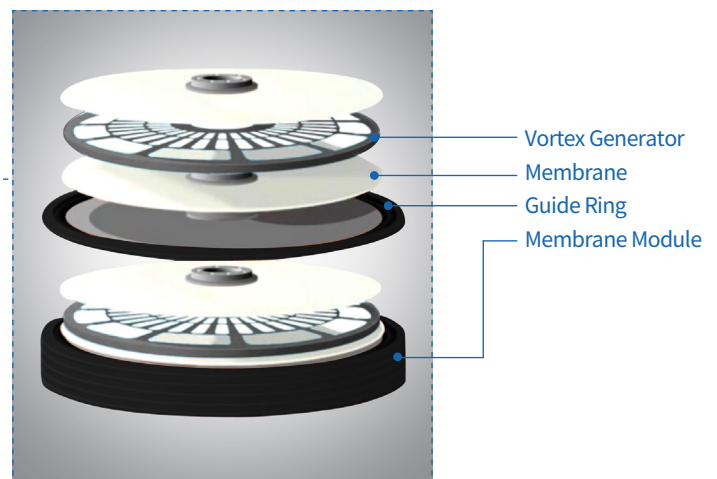
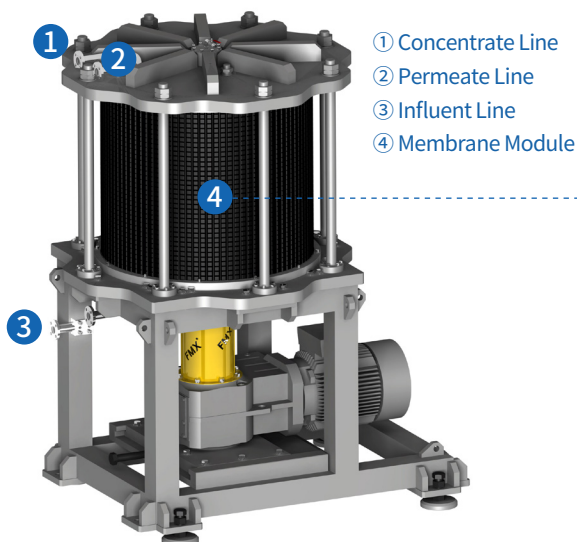


Vortex

Continuous generation of strong vortices reduces fouling on the surface of the membrane.



Structure



- Vortex Generator:** Light and durable engineering plastics
- Membrane:** Stacked one by one with the vortex generator
- Guide Ring:** Fixing membranes and securing permeate lines

Applications

FMX - The Innovative Solution

FMX maintains a high flux and recovery rate (up to 99.8%) under the most challenging conditions. With FMX, clients have increased their profits through greater recoveries and have turned cost streams into profit streams.



Simplification

Bio Food

Oligo Saccharides(Fucosyl Lactose, Sialic lactose, Allulose), Natural extracts, Recombinant protein, DHA Oil

Bio Pharmaceutical

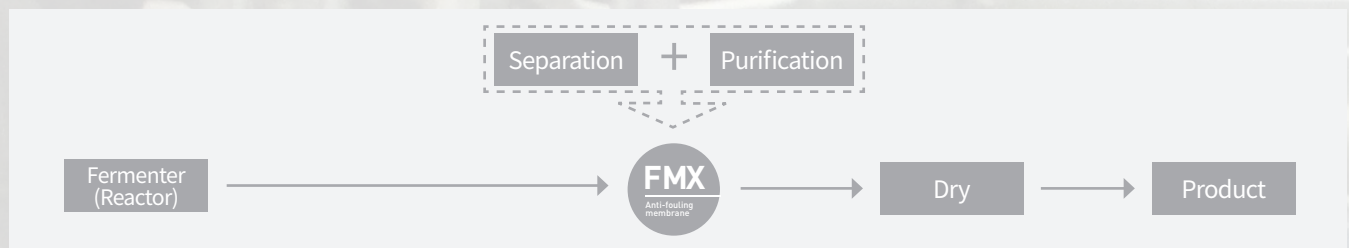
Antibiotic, Plasmid

Bio Chemical

BDO (Butanediol), PDO (Propanediol), BioCellulose, CNF (Cellulose Nano Fiber), Yeast Oil

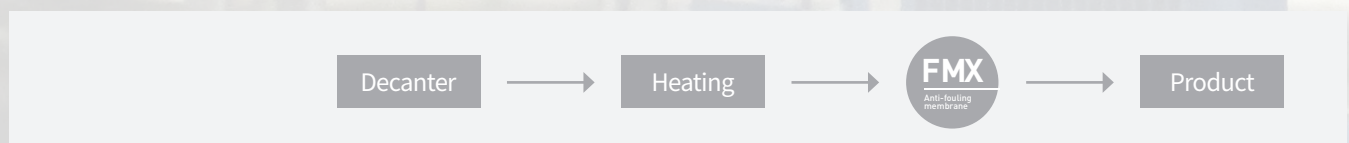
Semiconductor

CMP Slurry (Ceria, Silica), Silver Powder (Solar Cell Panel), Nano Materials



Simplify processes by addressing separation and purification simultaneously - reduce investment costs and improve quality and productivity.

Waste Oil Refinery



Applications

Clients

Our systems are used in wastewater treatment, separation and dewatering in manufacturing processes, and recovery (reuse, recycle) applications. FMX has a proven track record in various industries, such as biotech, chemical, food & beverage, mining, FGD, digestate & livestock wastes, waste oil, and energy.

FMX is a trusted technology used by global corporations and research labs.



Cost-Savings

Bio Food

Probiotics (Bifido bacterium, Lactobacilius), Enzyme, Bacillus (Vitamin K2), γ -PGA, Collagen Peptides, Fucose

Bio Pharmaceutical

Antibiotic, Plasmid, Bacterio phage, EGF, Albumin, Anticancer drugs

Bio Chemical

β -Glucan, Polymer, Muconic Acid, Actinomycetes, Fungi, Natural Product (Decolorization Process)

Semiconductor

PVA Polarizing Film, Silver paste, CNT, Nano Pigment

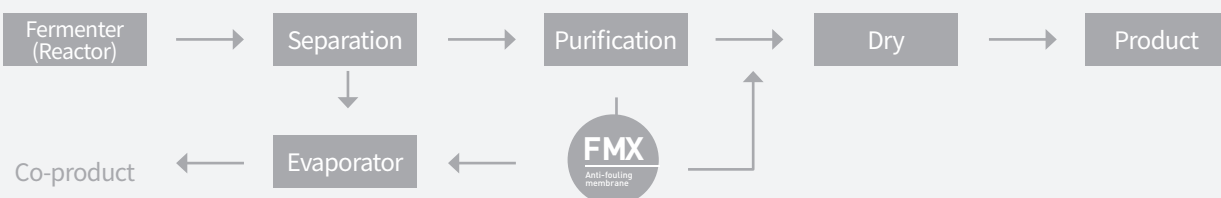


By enrichment with FMX, additives used in the backend process are reduced and the number of incubation cycles are minimized to prevent product loss (an issue common in mechanical separation).

Increase Productivity

Bio Food

Amino Acid (L-Methionine, L-Tryptophan, L-Lysine, L-Threonine, Glutamine), MSG, Beer, Yeast

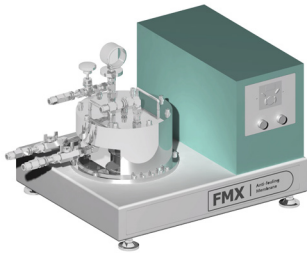


Improve productivity with FMX by recovering more within existing processes.

Models

Lab Analysis - Simulation Test (5L~1,000L, 1 gal ~ 265 gal)

B-Class



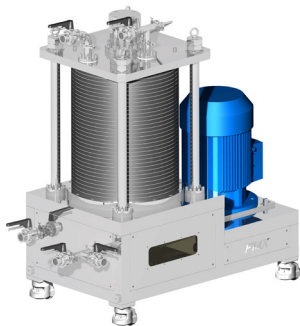
Model	FMX B-Class	Materials	
Type	Bench-Top Model	Wetted parts	STS304
Membrane Surface Area	0.015 m ² , 0.16 ft ²	Chassis	STS304
Maximum Pressure	15 kg/cm ² , 213 psi	O-Rings	EPDM
Available Membranes	MF, UF, NF	Membrane Trays	-
Maximum Temperature	95 °C, 203 °F	Vortex Generator	STS304
Vortex RPM	800 rpm	Guide Rings	-
Weight	50 kg, 110 lbs		
Motor	0.2 kW		
Dimensions (L x W x H)	0.49 x 0.45 x 0.47 (m) 1.75 x 1.5 x 1.5 (ft)		

B5-Class



Model	FMX B5-Class	Materials	
Type	Bench-Top Model	Wetted parts	STS304
Membrane Surface Area	0.15 m ² , 1.62 ft ²	Chassis	STS304
Maximum Pressure	5 kg/cm ² , 71 psi	O-Rings	EPDM
Available Membranes	MF, UF	Membrane Trays	STS304
Maximum Temperature	95 °C, 203 °F	Vortex Generator	STS304
Vortex RPM	800 rpm	Guide Rings	STS304
Weight	160 kg, 355 lbs		
Motor	0.55 kW		
Dimensions (L x W x H)	0.5 x 0.7 x 1.3 (m) 1.75 x 2.25 x 4.25 (ft)		

P-Class



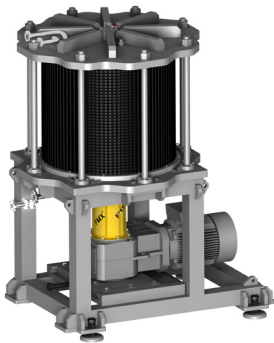
Model	FMX P-Class	Materials	
Type	Small Scale Model	Wetted parts	STS304
Membrane Surface Area	12 m ² , 130 ft ²	Chassis	STS304
Maximum Pressure	5 kg/cm ² , 71 psi	O-Rings	EPDM
Available Membranes	MF, UF	Membrane Trays	STS304
Maximum Temperature	95 °C, 203 °F	Vortex Generator	Engineering Plastic
Vortex RPM	350~450 rpm		
Weight	1,060 kg, 2,340 lbs	Guide Rings	Engineering Plastic,
Motor	15 kW		STS304
Dimensions (L x W x H)	0.7x 1.2 x 1.8 (m) 2.25x 4.0x 6.0 (ft)		

Models

We provide objective consultations for optimal treatment processes.

Customization (Over 5KL, 1320 gal)

E-Class



Model	FMX E-Class	Materials	
Type	Economic Model	Wetted parts	Bottom Plate: PE
Membrane Surface Area	40 m ² , 431 ft ²		Top Plate: PE
Maximum Pressure	5 kg/cm ² , 71 psi		Driveshaft: STS304
Available Membranes	MF, UF	Chassis	SS41 & SM45C
Maximum Temperature	80 ~ 130 °C, 176-266 °F	O-Rings	EPDM
Vortex RPM	230 rpm	Membrane Trays	STS304
Weight	4,000 kg, 8,820 lbs	Vortex Generator	Engineering Plastic
Motor	30 kW	Guide Rings	Engineering Plastic
Dimensions (L x W x H)	1.6 x 1.3 x 2.3 (m) 5.25 x 4.25 x 7.5 (ft)		

S-Class



Model	FMX S100	Materials	
Type	Standard Model	Wetted parts	Bottom Plate: STS304
Membrane Surface Area	95 m ² , 1023 ft ²		Top Plate: STS304
Maximum Pressure	15 kg/cm ² , 213 psi		Driveshaft: STS304
Available Membranes	MF, UF, NF	Chassis	SS41 & SM45C
Maximum Temperature	95 °C, 203 °F	O-Rings	EPDM
Vortex RPM	230 rpm	Membrane Trays	STS304
Weight	8,000 kg, 17,640 lbs	Vortex Generator	Engineering Plastic
Motor	75 kW	Guide Rings	Engineering Plastic, STS304
Dimensions (L x W x H)	2.2 x 1.4 x 3.7 (m) 7.25 x 4.5 x 12.25 (ft)		

CP-Class (Ceramic)



Model	FMX CP-Class	Materials	
Type	Ceramic E Model	Wetted parts	STS304
Membrane Surface Area	8 m ² , 86 ft ²	Chassis	STS304
Maximum Pressure	5 kg/cm ² , 71 psi	O-Rings	EPDM
Available Membranes	Ceramic MF(0.05µm)	Membrane Trays	STS304
Maximum Temperature	130 °C, 266 °F		Engineering Plastic
Vortex RPM	Max 440 rpm		
Weight	940 kg, 2,075 lbs	Vortex Generator	Engineering Plastic
Motor	15 kW		
Dimensions (L x W x H)	0.7 x 1.2 x 1.8 (m) 2.25 x 4.0 x 6.0 (ft)	Guide Rings	-

* This specification is standard and can be changed according to client requirements.