

STERAPORE™ 5600-5700 Series

Advanced PVDF Hollow Fiber Ultrafiltration Membranes — Engineered for MBR Systems



STERAPORE™

Engineering & Manufacturing



**MITSUBISHI
CHEMICAL
GROUP**

Thailand's Authorized Distributor

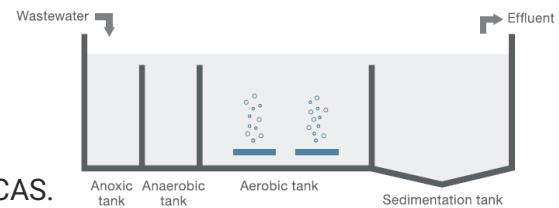


C.M.P. GROUP
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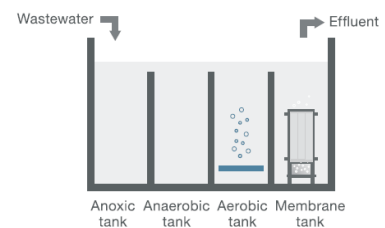
"Membrane Bioreactor (MBR) technology offers advanced wastewater treatment with significant advantages over conventional activated sludge (CAS) systems."

Why Choose Membrane Bioreactors (MBR) Technology?

- **Smaller plant footprint by 30–50%** compared to CAS systems.
— No primary or secondary clarifier, smaller bioreactor volume due to higher MLSS.
- **Faster project delivery time by 20–30%** due to modular membrane units and reduced civil works.
— Standardized modules, prefabrication -> reduce design and installation time.
- **Lower long-term OPEX by 15–25%** over plant lifecycle 20 years vs CAS.
— Lower sludge production (~30–50% reduction), lower sludge disposal cost, no chemical coagulants for clarifier, simplified maintenance.
- **Delivering superior effluent (TSS <1 mg/L, BOD <5 mg/L, SDI <3)**, enabling high water reuse.
— Over 70% of industrial MBR plants globally now integrate water reuse systems (RO, Cooling Tower, Process Water).
- **Smart & sustainable choice for the future, over 5,000+ MBR plants worldwide** using Mitsubishi STERAPORE™ membrane.
— Aligned with ESG goals, Green Building standards, and Circular Economy trends.
- **Fully compatible with automation systems**, including IoT, SCADA, and AI-driven process optimization.
— Ideal for Smart Factories, Green Factories, and Industry 4.0 compliance.



Conventional Activated Sludge (CAS)



Membrane Bioreactors (MBR)



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STERAPORE™ 5600-5700 Series

PVDF Hollow Fiber Ultrafiltration Membrane Module for MBR Applications



Ease of Installation & Maintenance

Dry Storage Ready
Up to 36 months,
hydrophilic membrane surface

Easy Handling
Simple installation
and fast system start-up

No Tank Drain Required
Cleaning In Place (CIP) - ready
without draining membrane tank

Advanced Back-Pulse Cleaning
Efficient chemical cleaning
with high permeate structure



Operational Efficiency & System Performance

Backwash-Free Operation
Low-fouling design with
filtration & relaxation cycles

High Recovery Rate
Simplified system with
optimized performance

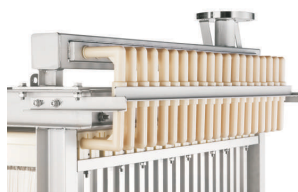
Flexible Integration
Modular MBR units or
fully integrated systems available

Energy Efficient
Reduced aeration demand
and minimal RAS pumping

Skid-mounted for seamless system integration and equipped, each module is engineered by **Mitsubishi Chemical, Japan**
—integrating key components to deliver superior MBR performance with outstanding efficiency and reliability.



PVDF Hollow Fiber
Ultrafiltration Membranes



High-Strength Potting



Robust Stainless Steel Frame

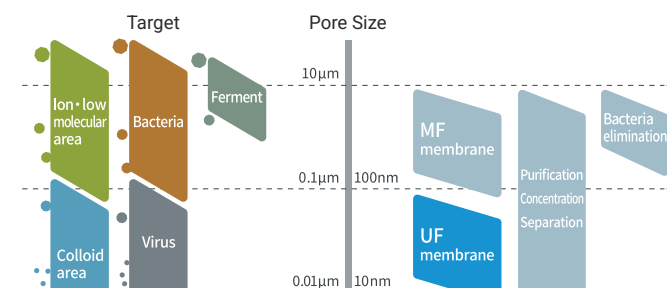


Optimized Air Scouring
and Aeration System

PVDF Hollow Fiber Ultrafiltration Membrane (Polyvinylidene Fluoride)

— Engineered for energy saving, reliable MBR performance and long membrane life.

- **Superb durability**
— reinforced by high-strength support layer
- **High permeability**
— optimized membrane structure for stable, high flux
- **Excellent chemical resistance**
— compatible with aggressive cleaning protocols (CIP)

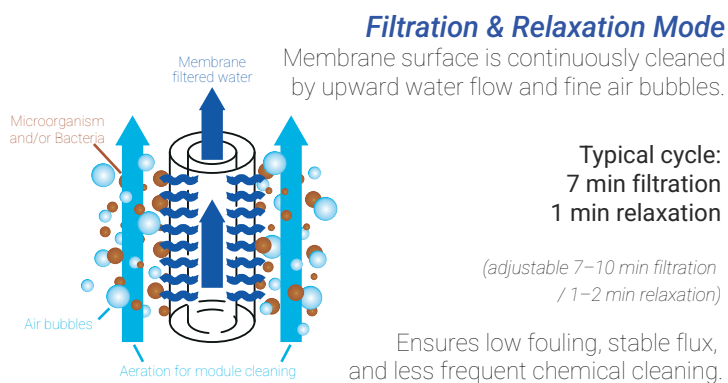
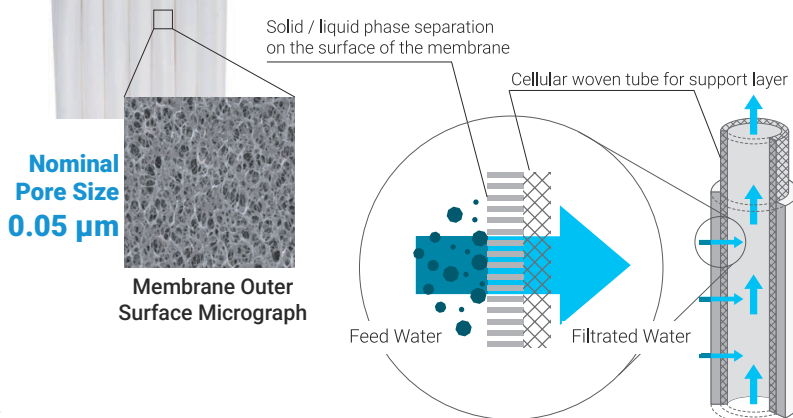


UF membranes provide effective removal of bacteria, viruses, and suspended solids — ideal for MBR systems, MBR + RO pretreatment, and seawater desalination pretreatment.

Hollow Fiber Membrane
Outer Diameter 1.65 mm

Outside-in Filtration Mechanism

Feed water flows from outside to inside through hollow fibers — enabling efficient solid-liquid separation and low fouling operation.



Chemical Cleaning (CIP Mode)

Periodic chemical cleaning restores membrane performance and extends service life.

Typical cleaning schedule:

- Weekly maintenance cleaning

NaOCl 300–500 mg/L, injection 15–30 min.

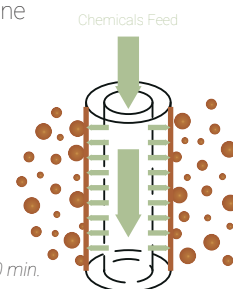
- Quarterly recovery cleaning

NaOCl 3000 mg/L, injection 30 min + immersion 90 min.

- Annual acid cleaning

Oxalic or Citric Acid 1–2%, injection 30 min + immersion 90 min.

Simple, operator-friendly process with minimal downtime.



Membrane Element Specifications

— Optimized for high-performance MBR systems with superior durability and energy efficiency.

Parameter	5600 Series	5700 Series
Membrane Material	PVDF (Polyvinylidene Fluoride)	
Membrane Type / Pore Size	Ultrafiltration (UF) / 0.05 µm	
Outer Diameter	1.65 mm	
Element Model No.	56E0040SA	57E0005SM
Membrane Surface Area	40 m ² per element 400–2,400 m ² per module	5 m ² per element 50–200 m ² per module
Element Height	2,000 mm	1,000 mm
Flux*	up to 33 LMH	up to 40 LMH
SADm**	0.11 m ³ /m ² /h	0.27 m ³ /m ² /h

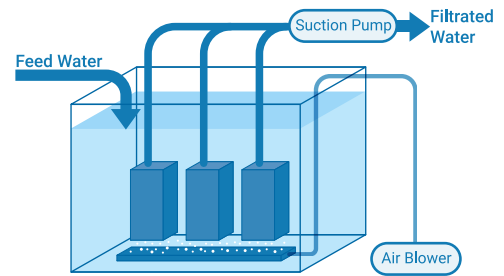
*Flux values based on clean water conditions. Operating flux may vary depending on the application and wastewater characteristics.

**SADm: Specific Aeration Demand for membranes (at standard operating conditions).

“Delivering reliable performance across thousands of MBR systems worldwide, STERAPORE™ 5600-5700 Series membranes ensure stable operation, simplified maintenance, and optimal lifecycle cost.”

Membrane Module Specifications — Submerged membrane filtration.

- Submerged membrane modules enable efficient filtration via suction pumps or gravity-driven flow.
- Low transmembrane pressure (TMP) operation minimizes energy consumption and OPEX.
- Flexible modular configurations in capacity and height support optimized, space-saving system designs.



Number of elements		10		20		30		40		60	
Series											
5600 Series Minimum Water Depth 3.0 m	40 m ²										
	56E0040SA										
	56M0400FF			56M0800FF		56M1200FF		56M1600FF		56M2400FF	
	D : 1524	400 kg	D : 1524	600 kg	D : 1524	800 kg	D : 1524	1000 kg	D : 1524	1550 kg	
	W : 940	400 m ²	W : 1390	800 m ²	W : 1870	1200 m ²	W : 2320	1600 m ²	W : 3516	2400 m ²	
H : 2798	2 x 65A	H : 2798	2 x 65A	H : 2798	2 x 65A	H : 2798	2 x 65A	H : 2798	2 x 65A	H : 2798	2 x 65A
		200 m ³ /day		400 m ³ /day		600 m ³ /day		800 m ³ /day		1200 m ³ /day	
5700 Series Minimum Water Depth 1.8 m	5 m ²										
	57E0005SM										
	57M0050FF			57M0100FF		57M0150FF		57M0200FF		Module Model No.	
	D : 668	90 kg	D : 668	120 kg	D : 670	150 kg	D : 670	180 kg	Depth (mm)	Dry Weight	
	W : 719	50 m ²	W : 994	100 m ²	W : 1269	150 m ²	W : 1544	200 m ²	Width (mm)	Surface	
H : 1600	Rc 1"	H : 1602	Rc 1-1/4"	H : 1632	Rc 2"	H : 1632	Rc 2"	Height (mm)	Connection		
		25 m ³ /day		50 m ³ /day		75 m ³ /day		100 m ³ /day		Capacity*	

*Capacity values are based on typical municipal wastewater at standard design flux. Actual capacity may vary depending on wastewater characteristics.

Design Operating Parameters

pH Range	5.0 – 9.0
Operating Temperature	5 – 40 °C
Maximum Oil and Grease	150 mg/L
Total Suspended Solids (TSS)	3,000 – 15,000 mg/L
Mixed Liquor Suspended Solids (MLSS)	8,000 – 15,000 mg/L
Transmembrane Pressure (TMP)	50 – 300 mbar
Design Permeate Flux	15 – 25 LMH (liters per square meter per hour)

Module Construction Materials

Module Frame	AISI304 / AISI316 / SAF2205
Membrane Elements	ABS + AISI304
Membrane Polymer	PVDF
Permeate Pipe	Stainless Steel / PVC
Air Pipe	Stainless Steel / PVC
Air Connection	80A Stainless Steel

Global References & Proven Applications — Proven in over 5,000 MBR installations worldwide.



Dongtang STP (South Korea)
Capacity: 120,000 m³/d
Operation: 2008~
Application: Municipal



Tilburg WWTP (Netherlands)
Capacity: 9,000 m³/d
Operation: 2016~
Application: Industrial



Mitsubishi Chemical (Japan)
Capacity: 2,000 m³/d
Operation: 2013~
Application: Industrial



Food & Beverage Factory (Thailand)
Capacity: 3,200 m³/day
Operation: 2021~
Application: Industrial
by C.M.P. GROUP



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