Our Membrane Your Solutions

MEMBRANE SOLUTIONS

Tel: +86-21-61478109 Fax: +86-21-51687551

Email： info@membrane-solutions.com

Address： http://www.membrane-solutions.com

China: Building 19, No. 113, Tongtao North Road, Jiulongpo District, Chongqing

USA: 3320 W Valley D108, Auburn, WA 98001

Membrane Solutions



Hollow Fiber Membrane

Professional Manufacturer

UF & MBR



Membrane Solutions

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Company Profile



Founded in 2006, Membrane Solutions is a high-tech US funded enterprise integrating the preparation of polymeric membranes, the production of membrane modules and the design & installation of integrated membrane system equipments. Its headquarter is located in Texas, USA.

Membrane Solutions has independently developed membrane production technology, and the membrane products have obtained ISO9001 and CE certification, and passed the U.S. FDA MS Ultra-filtration Division, equipped with experienced American engineers who has more than 30 years experience in the industry, can develop and customize membrane modules for customers to meet the special requirements of different applications, and also provides customers with optimized Membrane System or membrane equipment integration design schemes, water treatment process schemes, on-site installation guidance, commissioning and other technical services.

High quality membrane products and excellent technical services have successfully accumulated lots of application project cases for Membrane Solutions, such as power plants, sea water desalination, electronic industries, drinking water, municipal water, landfill leachates, domestic sewage, electroplating wastewater, slaughterhouse wastewater, etc. Membrane Solutions is a member of the China Industrial Membrane Association fostering technical exchange and cooperation within the industry and promotion of membrane water and wastewater applications.













Factory Tour

As a well-known global manufacturer of micro & ultra-filtration membrane R & D and application, **Membrane Solutions** has established a powerful membrane production factory (with 10,000 m^2 footprint areas) and R & D center, 3 membrane production lines and 3 equipment welding production lines to realize standardized production processes such as membrane production, membrane modules assembly, membrane modules testing and packaging to ensure large-scale and efficient production of UF & MBR membrane products.


Spinning


Membrane Drying


MBR Module Assembly


UF Module Assembly


Module Test


Package



MS® FUF Series UF Modules

Description

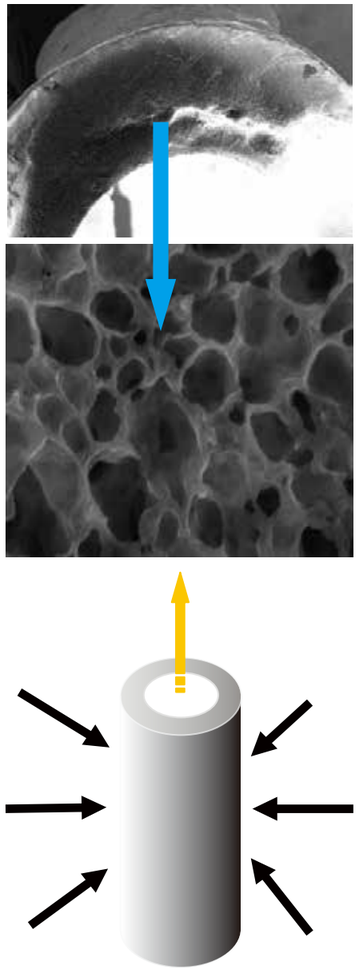
MS® FUF modules are made with high strength hollow fiber PVDF with 0.03 μm pore size. It offers high tolerance to chemical cleaning. Ultrafiltration (UF) provides excellent retention performance to particles, suspended solids, colloidal material, bacteria and viruses.

Membrane Solutions PVDF modules are used in a variety of applications including municipal water, drinking water, power plants, petrochemical, reverse osmosis pretreatment for desalination plants and high purity water.

*Equivalent modules can be customized on customers' request.

Features

- 0.03 μm pore size guarantees stable permeate
- Modified hydrophilic PVDF membrane with easy wetting performance
- High tolerance to varying influent water qualities
- Reduced pretreatment requirements due to outside-in flow
- High chemical resistance
- Energy saving due to low operating pressure
- Standard models allow for easy retrofits

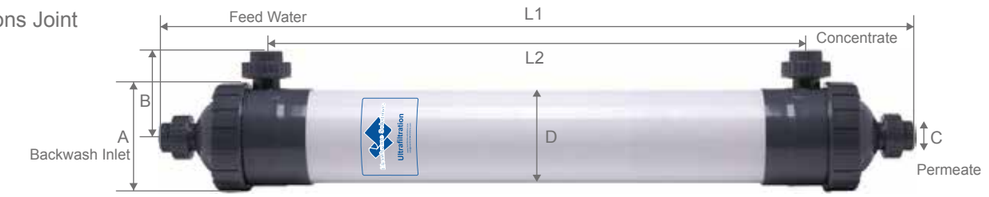


Applications

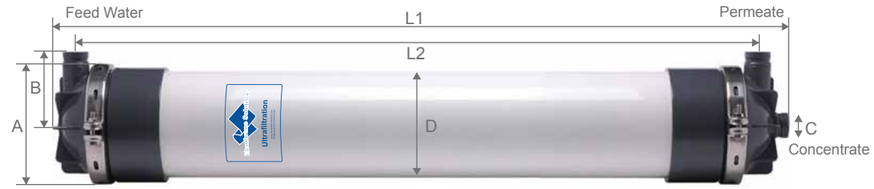
- Reverse osmosis pretreatment system
- Municipal wastewater treatment
- NSF potable water treatment
- Industrial wastewater treatment
- Wastewater recycle
- Surface and groundwater treatment

Standard Models

Unions Joint



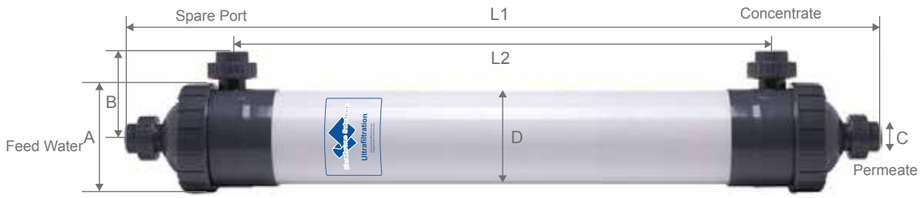
Coupling Joint



Module Model	MSFUF4040U	MSFUF6040U	MSFUF8060U	MSFUF8040C	MSFUF8060C	MSFUF1060C
Membrane Surface Area (m^2/ft^2)	8 / 86.11	25 / 269.10	55 / 592	40 / 430.55	55 / 592	75 / 807.29
Hollow Fiber Material	PVDF					
Pore Size (μm)	0.03	0.03	0.03	0.03	0.03	0.03
ID / OD (mm/inch)	0.7 (0.027) / 1.3 (0.051)					
Flow Direction	Outside - in					
L1 (mm/inch)	1,225 / 48.23	1,410 / 55.51	1,882 / 74.09	1,295 / 50.98	1,670 / 65.75	1,670 / 65.75
L2 (mm/inch)	1,025 / 40.35	1,045 / 41.14	1,473 / 57.99	1,200 / 47.24	1,595 / 62.80	1,595 / 62.80
D (mm/inch)	90 / 3.54	160 / 6.30	200 / 7.87	200 / 7.87	200 / 7.87	250 / 9.84
A (mm/inch)	110 / 4.33	195 / 7.68	240 / 9.45	235 / 9.25	235 / 9.25	290 / 11.42
C In/Outlet Connector	DN25	DN32	DN40	DN50	DN50	DN50
Housing Material	UPVC					
Joint Material	UPVC	UPVC	UPVC	Stainless Steel	Stainless Steel	Stainless Steel
Sealant	Epoxy Resin					
Max. Feed Pressure (Mpa/psi)	0.3 / 43.52					
Operation Flux (L/H)	400 - 1,200	1,250 - 3,750	2,750 - 8,250	2,000 - 6,000	2,750 - 8,250	3,750 - 11,250
Max. △TMP (Mpa/psi)	0.2 / 29.01					
Operation Temp (℃ / ℉)	5 - 40 / 41 - 104					
pH Range	2.0 - 12.0	2.0 - 12.0	2.0 - 12.0	2.0 - 12.0	2.0 - 12.0	2.0 - 12.0
Max. Turbidity (NTU)	300	300	300	300	300	300
Permeate Turbidity	≤ 0.1					
Permeate SDI	≤ 3.0	≤ 3.0	≤ 3.0	≤ 3.0	≤ 3.0	≤ 3.0
Max. Continuous Chlorine (ppm)	1,000 (available chlorine concentration)					
Backwash Flux (L/H)	600 - 800	1,900 - 2,500	4,200 - 5,500	3,000 - 4,000	4,200 - 5,500	5,500 - 7,500
Scouring Air Flux (Nm^3/H)	0.6 - 1.0	1.5 - 3	4 - 6	3 - 5	4 - 6	6 - 9

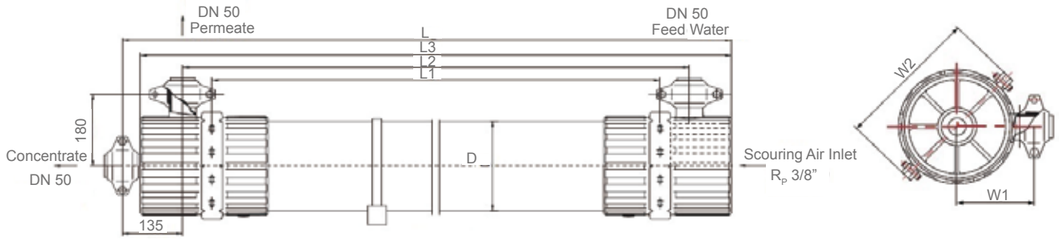
MSFUF6060U

Unions Joint



Module Specifications	
Module Model	MSFUF6060U
Membrane Surface Area(m^2/ft^2)	40 / 430.56
Hollow Fiber Material	PVDF
Pore Size (μm)	0.03
Fiber ID / OD (mm/inch)	0.7 (0.027) / 1.3 (0.051)
Flow Direction	Outside - in
Filtration Mode	Dead-end or Cross-flow Filtration
L1 (mm/inch)	1,816 / 71.5
L2 (mm/inch)	1,386 / 54.6
D (mm/inch)	160 / 6.3
A (mm/inch)	223 / 8.78
B (mm/inch)	173 / 6.8
C In/Outlet Connector	DN40 / 1.5”
Housing Material	UPVC
Joint Material	UPVC
Sealant	Epoxy Resin
Module Operation Parameters	
Operation Flux @25℃ (lmh/fgd)	40 - 120 / 24 - 71
Design Flux per Module (m^3/h or gpm)	2.0 - 4.0 / 8.8 - 17.6
Max. Feed Pressure @ 20℃ (bar/psi)	3.0 / 43.5
△TMP Range (bar/psi)	0 - 2.0 / 0 - 29
Max. Backwash Pressure (bar/psi)	0 - 2.0 / 0 - 29
Operation Temp. (℃/℉)	5 - 40 / 41 - 104
Operation pH Range	2.0 - 12.0
Backwash Flux (m^3/h)	3.0 - 4.0
Max. Tolerance Turbidity (NTU)	300
Max. NaOCl Tolerance Concentration (ppm)	1,000 (available chlorine concentration)
Max. SS Tolerance Concentration (ppm)	100
Permeate Turbidity (NTU)	≤ 0.1
Permeate SDI	≤ 2.5

MSFUF9070/90CA

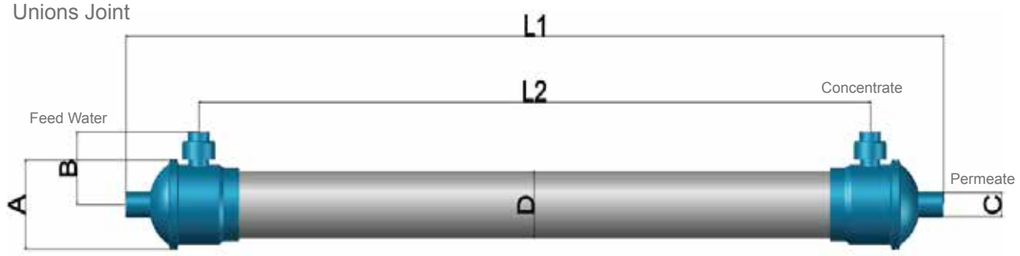


Module Specifications		
Module Model	MSFUF9070CA	MSFUF9090CA
Membrane Surface Area(m^2/ft^2)	51/ 549	77 / 829
Hollow Fiber Material	PVDF	
Pore Size (μm)	0.03	
Fiber ID / OD (mm/inch)	0.7 (0.027) / 1.3 (0.051)	
Flow Direction / Filtration Mode	Outside - in / Dead-end or Cross-flow Filtration	
L (mm/inch)	1,860 / 73.2	2,360 / 92.9
L1 (mm/inch)	1,500 / 59.1	2,000 / 78.7
L2 (mm/inch)	1,630 / 64.2	2,130 / 83.9
L3 (mm/inch)	1,820 / 71.7	2,320 / 91.3
D (mm/inch)	225 / 8.9	225 / 8.9
W1 / W2 (mm/inch)	180 (7.1) / 342 (13.5)	180 (7.1) / 342 (13.5)
Housing / Joint Material	UPVC / Stainless Steel	
Sealant	Epoxy Resin	
Module Operation Parameters		
Operation Flux @25℃ (lmh/fgd)	40-120 / 24-71	
Design Flux per Module (m^3/h or gpm)	2.0 - 6.0 / 8.8 -2 6.4	3.0 - 9.0 / 13.2 - 39.6
Max. Feed Pressure @20℃ (bar/psi)	3.0 / 43.52	3.0 / 43.52
△TMP Range (bar/psi)	0 - 2.1 / 0 - 30	
Max. Backwash Pressure (bar/psi)	2.5 / 36	
Operation Temp. (℃/℉)	5 - 40 / 41 - 104	
Operation pH Range	2.0 - 12.0	
Backwash Flux (m^3/h)	3.0 - 4.0	4.0 - 6.0
Max. Tolerance Turbidity (NTU)	300	
Max. NaOCl Tolerance Concentration (ppm)	2,000 (available chlorine concentration)	
Max. SS Tolerance Concentration (ppm)	100	
Permeate Turbidity (NTU)	0.1	
Permeate SDI	≤ 2.5	

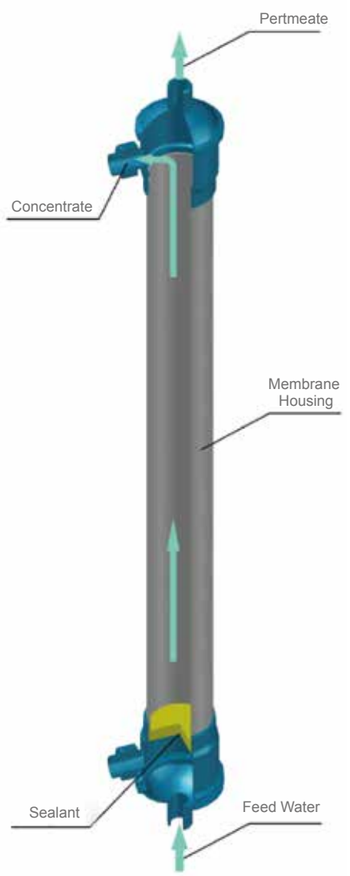


MSFUFX6590

Unions Joint

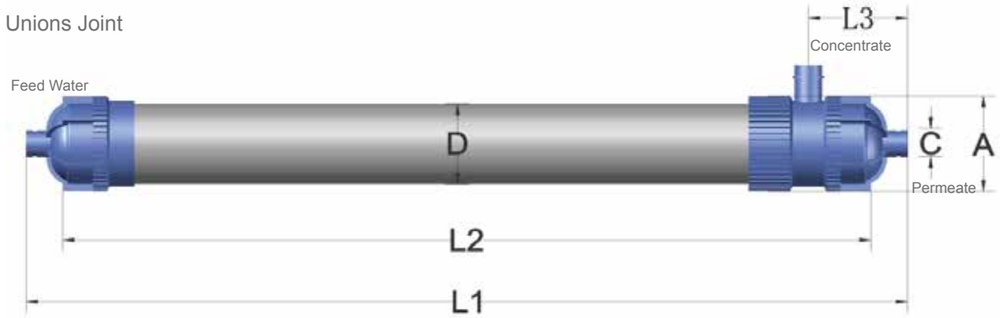


Module Specifications	
Module Model	MSFUFX6590
Membrane Surface Area (m^2/ft^2)	50 / 538.6
Hollow Fiber Material	PVDF
Pore Size (μm)	0.03
Fiber ID / OD (mm/inch)	0.7 (0.027) / 1.3 (0.051)
Flow Direction / Filtration Mode	Outside-in / Dead-end or Cross-flow Filtration
L1 (mm/inch)	2,340 - 2,420 / 92.13 - 95.28
L2 (mm/inch)	1,907 - 1,987 / 75.08 - 78.23
D (mm/inch)	160 / 6.30
A (mm/inch)	215 / 8.46
C (Inlet / Outlet)	DN50
Housing Material	UPVC
Joint Material	UPVC
Sealant	Epoxy Resin
Module Operation Parameters	
Operation Flux @25℃ (lmh/fgd)	40 - 120 / 24 - 70
Design Flux per Module (m^3/h or gpm)	2.0 - 6.0 / 8.8 - 26.4
Max. Feed Pressure @20℃ (kpa/psi)	250 / 36
△TMP Range (kpa/psi)	0-210 / 0 - 30
Operation Temp. (℃/℉)	5 - 40 / 41-104
Operation pH Range	2.0 - 10.0
Max. Air Scouring Flux (Nm^3/h)	3 - 5
Max. Backwash Flux (m^3/h)	3 - 4
Max. Cleaning Temp. (℃)	40
Max. NaOCl Tolerance Concentration (ppm)	1,000 (available chlorine concentration)
Cleaning pH Range	2.0 - 12
Permeate Turbidity (NTU)	≤ 0.1
Permeate SDI	≤ 2.5



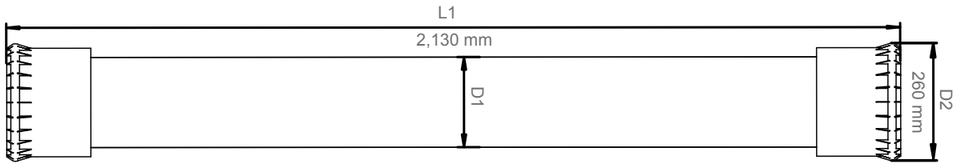
MSFUFG7080

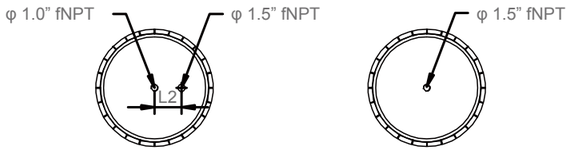
Unions Joint



Module Specifications	
Module Model	MSFUFG7080
Membrane Surface Area (m^2/ft^2)	55.70 / 600
Hollow Fiber Material	PVDF
Pore Size (μm)	0.03
Fiber ID / OD (mm/inch)	0.7 (0.027) / 1.3 (0.051)
Flow Direction	Outside-in
L1 (mm/inch)	1,920 / 75.59
L2 (mm/inch)	1,760 / 69.29
L3 (mm/inch)	216 / 8.50
D (mm/inch)	180 / 7.09
A (mm/inch)	213 / 8.38
Housing Material	UPVC
Joint Material	UPVC
Sealant	Epoxy Resin
Module Operation Parameters	
Operation Flux @25℃ (lmh/fgd)	40-120 / 24-71
Design Flux per Module (m^3/h or gpm)	2.2 - 6.7 / 6.68 - 29.48
Max. Feed Pressure @20℃ (kpa/psi)	380 / 55
TMP Range (kpa/psi)	0 - 276 / 0 - 40
Operation Temp. (℃/℉)	5 - 40 / 41-104
Working pH Range	5.0 - 10.0
Max. Scouring Air Flux (Nm^3/h)	5.1
Max. Backwash Flux (m^3/h)	1.8
Max. Cleaning Temp. (℃)	40
Max. NaOCl Tolerance Concentration (ppm)	1,000 (available chlorine concentration)
Cleaning pH Range	2.0 - 12
Permeate Turbidity (NTU)	≤ 0.1
Permeate SDI	≤ 2.5

MSFUF8584N

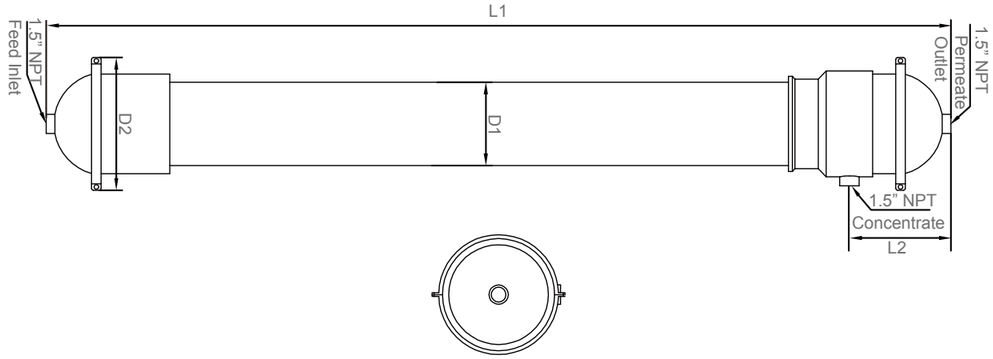






Module Specifications			
Module Model	MSFUF8584N	Dimensions D2 × L1 (mm/inch)	260 × 2,130 / 10.24 × 83.86
Membrane Surface Area (m^2/ft^2)	55 / 592	Feed Inlet (NPT)	1.5”
Hollow Fiber ID / OD (mm)	0.7/1.3	Permeate Outlet (NPT)	1.5”
Pore Size (μm)	0.03	Reject Outlet (NPT)	1.0”
Tensile Force (N)	11 - 12	Flow Direction	Outside-in
Housing / End Caps Material	PVC	Wet Weight (kg/lbs)	95 / 209
Sealant	Epoxy Resin	Dry Weight (kg/lbs)	55 / 121
Operating Parameters			
Design Flux (LMH / m^3/h)	30 - 136 (1.75 - 7.5)	Backwash Flux @30 ℃ (LMH)	200
Max. Feed Pressure (bar)	4.0	Max. Continuous Chlorine (ppm)	200
Max. △TMP (bar)	2.1	Max. Cleaning NaOCl (ppm)	500
Max. Backwash Pressure (bar)	2.5	Max. Continuous NaOCl (ppm)	10
Operation Temp. (℃)	1 - 40	Max. Feed TSS (ppm)	100
Operation pH	1 - 11	Max. Inlet Turbidity (NTU)	300
Cleaning pH	1 - 13	Permeate TSS (ppm)	≤ 0.5
Air Scouring Flux (Nm^3/h)	5 - 12	Permeate Turbidity (NTU)	≤ 0.1
Max. Air Scouring Pressure	2.5	Permeate SDI	≤ 3.0

MSFUF8584U

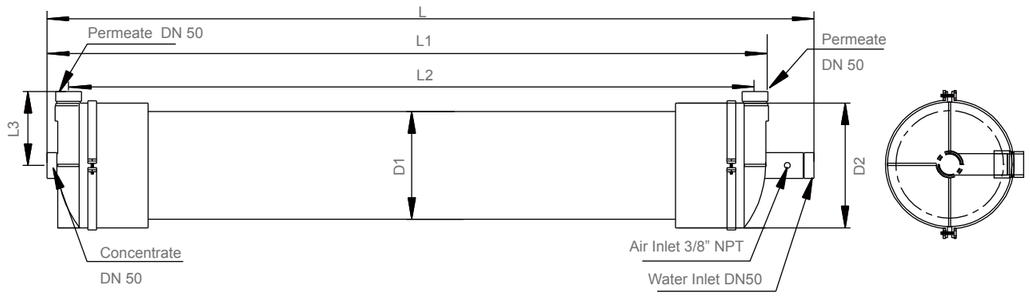




Module Specifications			
Module Model	MSFUF8584U	Dimensions D2 × L1 (mm/inch)	344 × 2,340 / 13.54 × 92.13
Membrane Surface Area (m^2/ft^2)	55 / 592	Feed Inlet (NPT)	1.5”
Hollow Fiber ID / OD (mm)	0.7 / 1.3	Permeate Outlet (NPT)	1.5”
Pore Size (μm)	0.03	Reject Outlet (NPT)	1.5”
Tensile Force (N)	11 - 12	Flow Direction	Outside-in
Housing / End Caps Material	PVC	Wet Weight (kg/lbs)	95 / 209
Sealant	Epoxy Resin	Dry Weight (kg/lbs)	55 / 121
Operating Parameters			
Design Flux (LMH / m^3/h)	30 - 136 (1.75 - 7.5)	Backwash Flux @30 ℃ (LMH)	200
Max. Feed Pressure (bar)	4.0	Max. Continuous Chlorine (ppm)	200
Max. △TMP (bar)	2.1	Max. Cleaning NaOCl (ppm)	500
Max. Backwash Pressure (bar)	2.5	Max. Continuous NaOCl (ppm)	10
Operation Temp. (℃)	1 - 40	Max. Feed TSS (ppm)	100
Operation pH	1 - 11	Max. Inlet Turbidity (NTU)	300
Cleaning pH	1 - 13	Permeate TSS (ppm)	≤ 0.5
Air Scouring Flux (Nm^3/h)	5 - 12	Permeate Turbidity (NTU)	≤ 0.1
Max. Air Scouring Pressure	2.5	Permeate SDI	≤ 3.0

MSFUF1050/70/90C

Coupling Joint



Module Model	MSFUF1050C	MSFUF1070C	MSFUF1090C
Effective Membrane Area (m^2)	52	78	105
Hollow Fiber Material	PVDF	PVDF	PVDF
Pore Size (μm)	0.03	0.03	0.03
Fiber ID / OD (mm)		0.7 (0.027) / 1.3 (0.051)	
Filtration Mode	Outside-in	Outside-in	Outside-in
L (mm)	1,364.9	1,832.6	2,340.6
L1 (mm)	1,257.3	1,724.7	2,232.7
L2 (mm)	1,135.5	1,602.9	2,110.9
L3 (mm)	172	172	172
D1 (mm)	250	250	250
D2 (mm)	290	290	290
Inlet / Outlet / Concentrate Port	DN 50 (Victaulic)	DN 50 (Victaulic)	DN 50 (Victaulic)
Housing Material	UPVC	UPVC	UPVC
Joint Material	UPVC	UPVC	UPVC
Sealant	Epoxy Resin	Epoxy Resin	Epoxy Resin
Max. Inlet Pressure (bar)	3.0	3.0	3.0
Design Flux (LMH / m^3/h)	34 - 110 (1.8 - 5.5)	34 - 110 (2.7 - 8.6)	34 - 110 (3.6 - 11.6)
Max. △TMP (bar)	2.0	2.0	2.0
Operation Temp. (℃)	5 - 40	5 - 40	5 - 40
pH Range	2 - 10	2 - 10	2 - 10
Permeate Turbidity (NTU)	≤ 0.1	≤ 0.1	≤ 0.1



*Many more equivalent UF modules are available.

MS® FSF Series MBR Modules

Description

MS® FSF MBR modules are made with reinforced hollow fiber PVDF membrane. The hollow fibers have high tensile strength with excellent chemical resistance. 0.1 μm pore size provides superior rejection rate of suspended solids, bacteria and viruses.

Compared with conventional treatment, MS® FSF MBR modules produce extremely high quality permeate. Due to the high mixed liquor suspended solids (MLSS), MS® FSF MBR modules can greatly reduce the overall treatment plant footprint and annual operation cost.

*Equivalent modules can be customized on customers' request.

Features

- High hydrophilic PVDF membrane
- Reinforced hollow fiber membrane
- Reduced treatment plant footprint
- Long service life
- Consistent and stable flux performance
- Energy saving due to low operating pressure

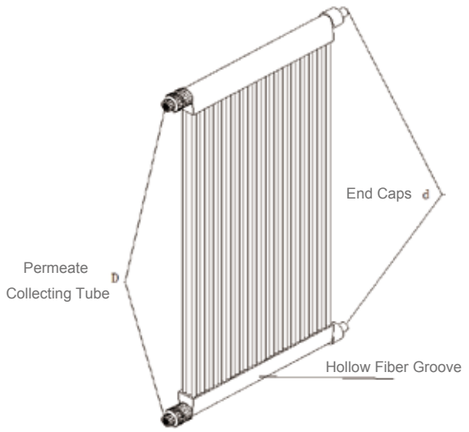


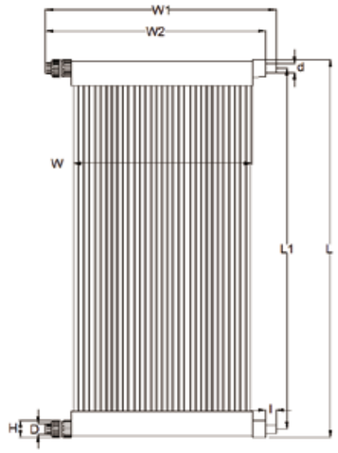
Applications

- Municipal sewage treatment and reuse
- Ideal for Green Building needing water reuse
- Industrial wastewater treatment and reuse
- Landfill wastewater treatment
- Pre-treatment for RO system



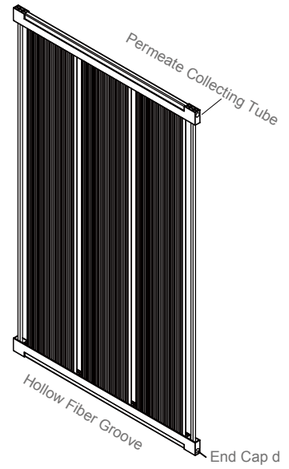
MBR Modules Specifications

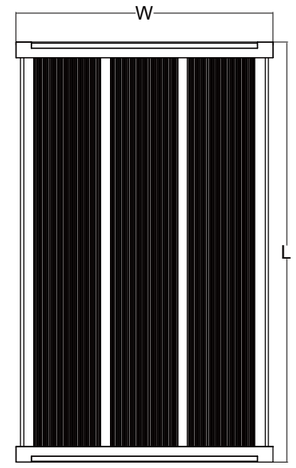




Module Model	MSFSF4010T	MSFSF6015T	MSFSF8020T
Effective Membrane Area (m^2/ft^2)	10 / 107.64	15 / 161.46	20 / 215.28
Membrane Material	PVDF (with PET Supporting Layer)		
Pore Size (μm)	0.1		
Fiber ID/OD (mm/inch)	0.9 (0.035) / 2.2 (0.087)		
L1 (mm/inch)	1,000 / 39.37	1,500 / 59.05	2,000 / 78.74
L (mm/inch)	1,025 / 40.35	1,525 / 60.04	2,025 / 79.72
W (mm/inch)	480 / 18.9	480 / 18.9	480 / 18.9
W1 (mm/inch)	620 / 24.4	620 / 24.4	620 / 24.4
W2 (mm/inch)	591.7 / 23.30	591.7 / 23.30	591.7 / 23.30
I (mm/inch)	28.3 / 1.11	28.3 / 1.11	28.3 / 1.11
H (mm/inch)	48 / 1.89	48 / 1.89	48 / 1.89
Permeate Port D	G1/2" FNPT		
End Cap Size d (mm)	Φ 24		
Filtration Mode	Suction with Negative Pressure		
Design Flux (LMH)	10 - 30		
Module Gross Weight (kg/lb)	4.7 / 10.36	5.8 / 12.79	6.6 / 14.55
Sealing Material	PU		
Permeate Collecting Tube Material	ABS		
Recommended Flux (L/H)	100 - 300	150 - 450	250 - 750
Max. △TMP (Mpa/psi)	-0.05 / -7.25		
Operation Temp. Range (℃/℉)	5 - 40 / 41 - 104		
Optimal Operation pH Range	6 - 9		
Recommended pH Range	2 - 10		
Max. Active Chlorine (ppm)	1,000		

MSFSF8030TM Specifications





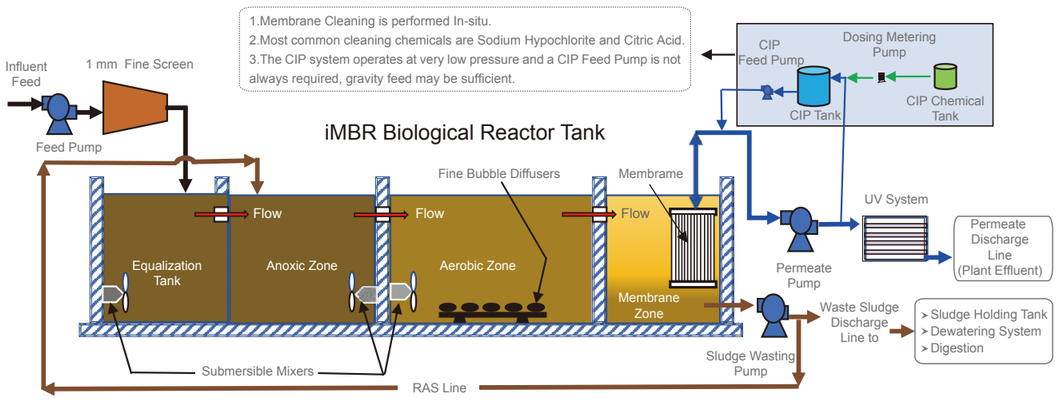


Module Model	MSFSF8030TM
Membrane Surface Areas (m^2/ft^2)	30 / 322.92
Membrane Material	PVDF (with PET Supporting Layer)
Pore Size (μm)	0.1
ID/OD (mm/inch)	0.9 (0.035) / 2.2 (0.087)
L (mm/inch)	2,080 / 81.89
W (mm/inch)	1,250 / 49.21
H (mm/inch)	33.2 / 1.31
End Cap d (mm)	Φ 24.2
Flow Mode	Suction with Negative Pressure
Flux Design (LMH)	10 - 30
Module Weight (kg/lb)	13 / 28.66
Sealing Material	PU
Permeate Collecting Tube Material	ABS
Operation Flux (L/H)	300 - 900
Max. TMP (Mpa/psi)	-0.05 / -7.25
Operation Temperature (℃/℉)	5 - 40 / 41 - 104
Optimal Operation pH Range	6 - 9
Max. Temperature (℃/℉)	40 / 104
Recommended pH Range	2 - 10
Max. Active Chlorine (ppm)	1,000

Project Application Cases

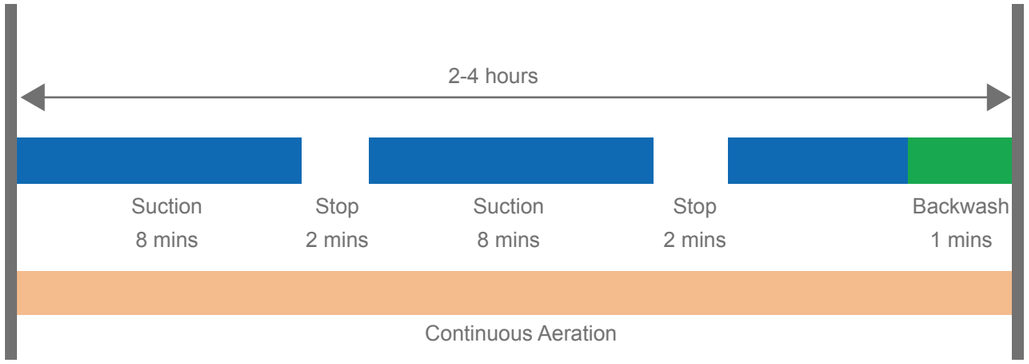
MBR & UF Process Flow

MBR Process Flow

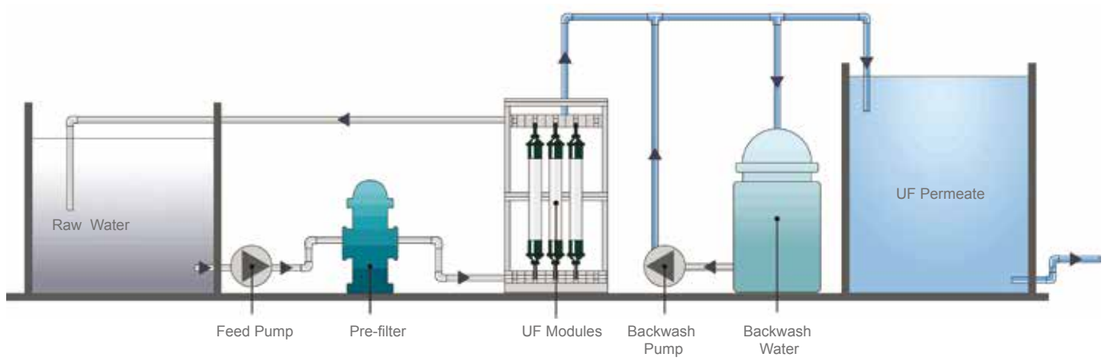


The above flow diagram is meant to depict a common MBR configuration. An MBR system can be design to meet any configuration required to meet local discharge limits for nutrients. Any conventional plant in operation can also be converted to an MBR system with minimal changes compared to adding an entirely new conventional treatment train. The above configuration does show WAS line, RAS line or those pumping configuration. It does not show the blowers or their respective air lines to the Fine Bubble diffuser grid or the membrane air scour diffuser.

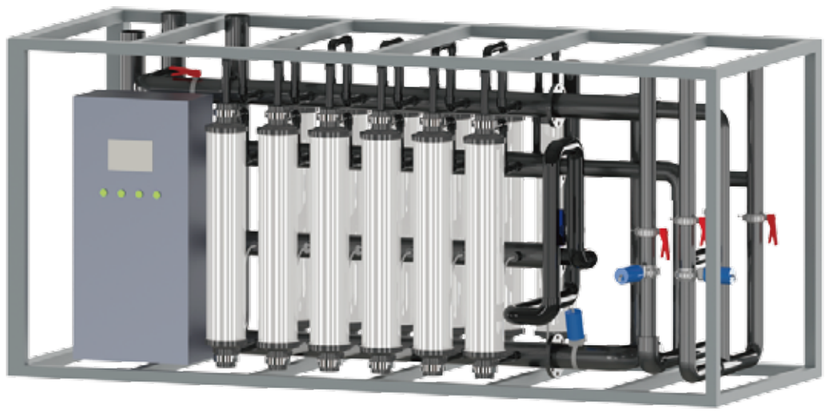
MBR Running Time



Typical UF Process Flow



UF Integrated System



UF Project Cases

36,000 m³/d Demineralized Water Project in Power Plant

Project Site: Inner Mongolia

Operation Date: May 2017



10,000 m³/d Potable Water Project — UF Containerized System

Project Site: Malaysia

Operation Date: June 2019







7,200 m³/d Boiler Water Project for Alumina Plant

Project Site: Zunyi, Guizhou

Operation Date: Feb 2019







5,000 m³/d Potable Water Project

Project Site: Malaysia

Operation Date: Sep 2016





3,600 m³/d Semiconductor Ultrapure Water Project

Project Site: Weihai, Shandong

Operation Date: July 2018



3,000 m³/d Textile Dyeing Wastewater Project

Project Site: Taiwan

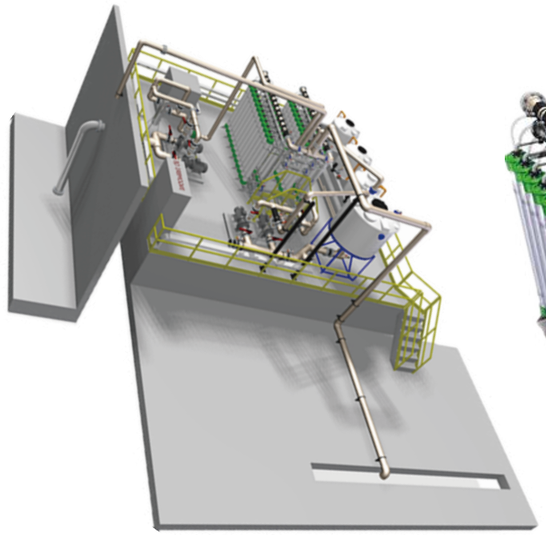
Operation Date: Dec. 2019

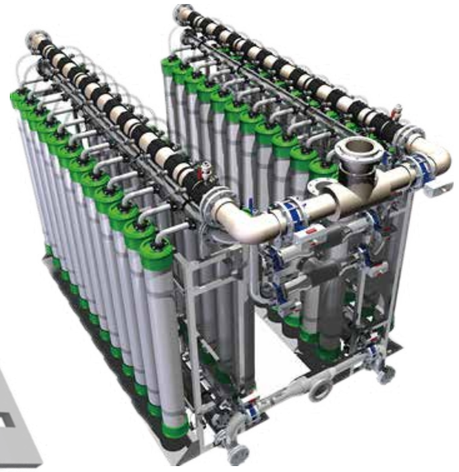


3,000 m³/d Textile Reject Water Recycling Project

Project Site: Casablanca, Morocco

Operation Date: Mar. 2021





MBR Project Cases

10,000 m³/d Electronic Wastewater MBR Project

Project Site: Nanchang, Jiangxi

Operation Date: June 2017



5,000 m³/d Electroplating Wastewater MBR Project

Project Site: Huizhou, Guangdong

Operation Date: April 2017





2,000 m³/d Municipal Sewage Treatment MBR Project

Project Site: South Africa

Operation Date: Aug. 2021





3,000 m³/d Palm Oil Mill Effluent MBR Project

Project Site: Malaysia

Operation Date: Mar. 2021





500 m³/d Sewage MBR Project in a Community

Project Site: Qushui County, Lhasa

Operation Date: May 2019





1,000 m³/d Landfill Leachate MBR Project

Project Site: Anhui

Operation Date: May 2017







500 m³/d Hotel Wastewater MBR Integrated System

Project Site: Caribbean

Operation Date: April 2018





600 m³/d Slaughter Wastewater MBR Project

Project Site: Zigong, Sichuan

Operation Date: Oct. 2018



