JX Purification

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ABOUT US

Nanjing Junxin Environmental Technology CO.,Ltd was found in 2014. JX Purification is a professional manufacture which engaged in **water purification, medical purification, air purification, other environmental products** such as solar panels, metal insulation board, PTFE films and so on.

Main products line is **RO membranes, MBR membranes, MBR flat sheet membranes and modules, UF membranes, Tubular UF membrane modules, Small RO reverse osmosis equipment, Wastewater treatment system.**

JX Purification boasts the leading productivity in the same sector, with the total area of 6 factories hitting 5000sqm. We have more than hundreds production lines and thousands equipments. With more than thousands stuff. 20% of the stuff is the R&D talents.

JX Purification has a professional team which are skilled at research and development, technical training and membrane solutions with promptly after-sales service.

JX Purification has cooperated with more than 300 clients over the world. JX got 1600 projects and gave the accurate service and support to 60 countries. JX Purification will create more environmental places for the world in the future.

Innovation, faith is the tenet of our company. We can supply customized design, membrane solutions, technical support, professional communication, comprehensive service.

JX Purification will bring you less time but more feedback.

JX Purification will bring you customized design schemes.

JX Purification will bring you professional wastewater treatment solutions.

CONTENTS

JX Purification can supply you MBR membranes and modules. It can be the following three kinds.

1. PVDF/PTFE MBR membrane & Modules

2. MBR flat sheet membrane & Modules

1. PVDF/PTFE MBR MEMBRANE & MODULES

1) MBR working principle

Membrane filtration has a major role in water and wastewater treatment, which is superior to the conventional water technologies with a proven better performance and more efficient economics. The basic membrane processes are microfiltration (MF), ultrafiltration (UF), nanofiltration (NF), reverse osmosis (RO).

Separation ranges for those membranes are as follows: 100 to 1000 nm for MF, 5 to 100 nm for UF, 1 to 5 nm for NF, and 0.1 to 1 nm for RO.

For more than the last 10 years MBRs have emerged as an effective secondary treatment technology by using membranes in the range of MF and UF.

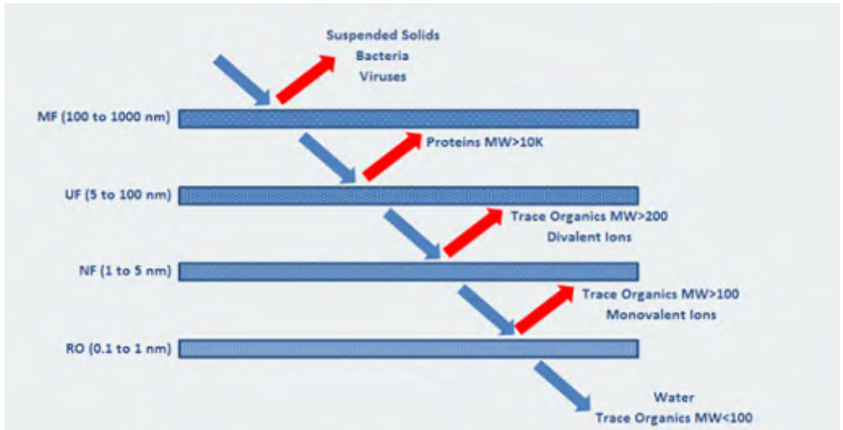

Fig.1, Classification of membranes according to pore size

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A Membrane bioreactor (MBR) processes are mainly used for wastewater treatment (WWT) by using microfiltration (MF) or ultrafiltration (UF) and integrating them with a biological process like a suspended growth bioreactor.

The membranes are employed as a filter removing the solids which are developed during the biological process, which gives a clear and pathogen free product. A visual example can be found from the following picture of an immersed MBR (iMBR) in Figure 2.

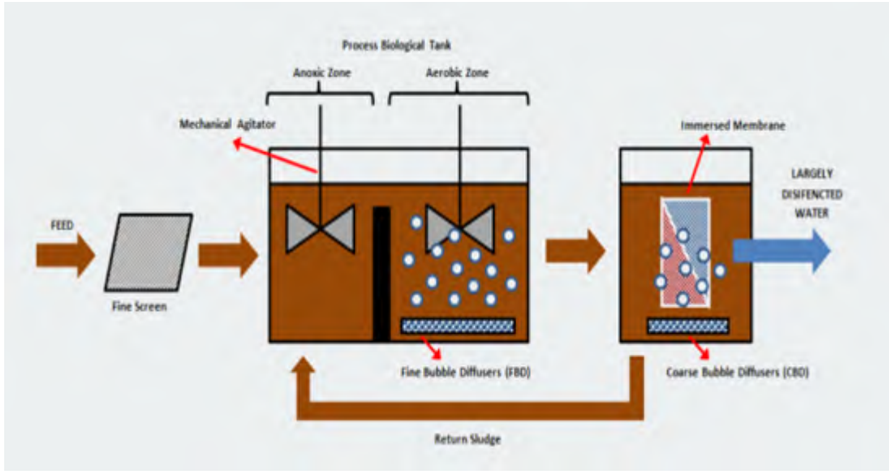

Fig.2 The wastewater goes through a fine screen for the removal of big objects that might cause damage to the downstream equipment. Then it enters an Anoxic Zone for the treatment of nitrogenous matter and phosphate following an Aerobic Zone where microorganisms with the help of the oxygen coming out of the FBD will digest the organics matter in the wastewater and clump together as they do so, producing a sludge. This sludge will enter the Immersed Membrane Bioreactor where the membrane will separate the solids and microorganisms from water.

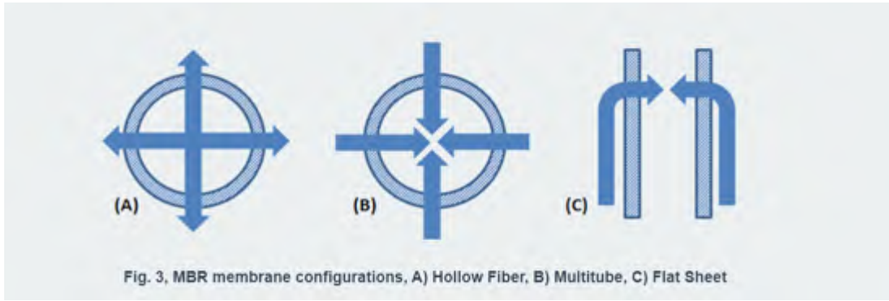

Fig. 3, MBR membrane configurations, A) Hollow Fiber, B) Multitube, C) Flat Sheet

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A membrane bioreactor is essentially a replacement in the conventional activated sludge (CAS) system for the settlement tank for solid/liquid separation. The MBR gives to the end user improved process control and much better product water quality.

The MBR process operates over a considerably different range of parameters than the conventional activated sludge process

- **SRT 5 -20 days for conventional system**
  - 20 -30 days for MBR
- **F/M 0.05 -1.5 d-1for conventional system**
  - < 0.1 d-1for MBR

In general MBRs have three distinct membrane configurations (Fig.3)

1. Hollow fibre (HF)
2. Multitube (MT)
3. Flat sheet (FS)

2) MBR Application

When MBR is your first choice ?

1. Limited space or you want to use space efficiently.
2. End user requires high quality treated water(e.g. for water reuse)

Although the MBR global market is mainly dominated by a few major companies, the number of technology suppliers continues to grow, with over 70 MBR membrane module products available on the market today.

In general MBRs have been applied to treat effluent in a number of industrial sectors, like:

1. food and beverage *− high in organic loading*
2. petroleum industry *− exploration, refining and petrochemical sectors*
3. pharmaceutical industry – *have active pharmaceutical ingredients (APIs)*
4. pulp and paper industry *− high levels of suspended solids, COD and BOD*
5. textile industry effluent *− re-biodegradability, toxicity, FOG content and color*
6. landfill leachate *− wide variety of dissolved and suspended organic and inorganic compounds*
7. ship effluents *− legislative requirements and space restrictions*
8. Industrial versus municipal treatment

3) JX MBR Advantages

It's generally acknowledged that membrane bioreactors have a number of advantages over other wastewater technologies.

I. Independent control of HRT(hydraulic retention time)and SRT(solids retention time)
II. High quality effluent
III. Small footprint
IV. Improved bio-treatment
V. Independent control of HRT and SRT
VI. MBR OPEX

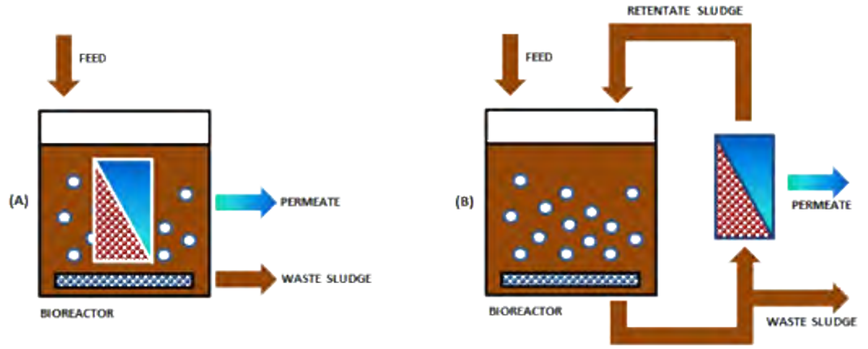


Fig.4，Main MBR Configuration；(A) Immersed MBR，(B) Side stream MBR

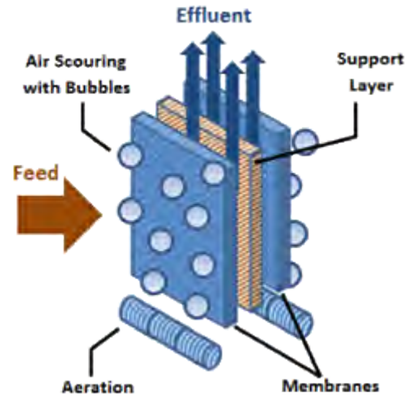


Fig. 5，Clean the surface of the MBBR film with air bubbles from aeration

4) Specifications & Parameters

1) PVDF MBR membrane

Normally, we have three normal specifications 10,15,20. And we still can make customsized such as 25 or 35.

PVDF Membrane Specifications:

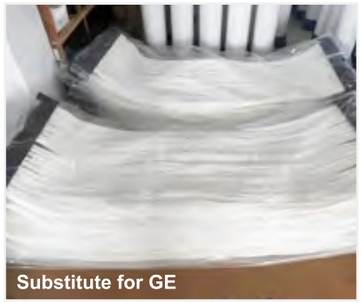
Regular model	Fiber diameter inside and outside (mm)	Dimensions a×b (mm)	Membrane area (m^2)	Water yield (t/d)	Effluent turbidity NTU	Effluent suspended solids SS	Specification of connecting pipe
JX-MBR-1	0.8/1.9 1.0/2.2	630*1000	10	2.4-3.6	<0.3	≈0	32
JX-MBR-2	1.5/2.6	630*1500	15	3-5	< 0.3	≈0	32
JX-MBR-3	1.5/2.6	630*1960	20	5-8	< 0.3	≈0	32
JX-MBR-4	1.5/2,6	1300*1250*30	25/35	6-14	< 0.3	≈0	/

Parameters:

Appearance	Hollow fiber		
Dimensions（mm）	630*1000	630*1500	630*1960
Membrane material	PVDF		
Effective membrane area（㎡）	10	15	20
Design fluxm³/0.1MPa·25℃	10-40L/㎡/H		
Filter type	Immersion suction filtration		
Component connection mode	Plug in		
Type of nozzle	/		
Connecting pipeΦ	32		
Packaging material of membrane module	Plastic and Wooden Case		
Service temperature	5-50℃		
Operating pressure	≤0.3MPa		
PH range	1-14		
Molecular weight cut off（Dal）	67000-100000		
Membrane material	Hydrophilicity PVDF（PETlining）		
Membrane pore size	0.1um/0.04um		
porosity	>70%		
Initial water yield	>300L/㎡·h		
Design flux	10-40L/㎡·h		
PH range	2-11		
Operating temperature range	5-40℃		
Aeration rate	Gas water ratio15:1-20:1		


Regular MBR modules


Substitute for MBR


Substitute for GE

Working MBR modules

2) PTFE MBR Membrane--World's first dry preservation membrane.

This PTFE hollow fiber MBR membrane which made by Sumitomo is fantastic. It can be used in industrial swege water, desalination pretreatment, oily wastewater, high concentration organic wastewater, high viscosity wastewater treatment. We have one client who used this kind membrane for 9 years. It is very qualified.
100% PTFE material.

PTFE Membrane Specifications:

Membrane module	JX-MBR-62	JX-MBR-61	JX-MBR-122	JX-MBR-121
Membrane Type	Hollow fiber			
Nominal diameter (m)	0.2	0.1	0.2	0.1
Membrane area (m^2)	6		12	
Overall dimensions (mm)	154 * 164 * 1300		154 * 164 * 2410	
Membrane	Hydrophilic tetrafluoroethylene			
Material The shell	ABS			
Sealant	Epoxy resin and polyurethane			
Working Max. TMP (kPa)	60			
Working Max. Temp. (°C)	40			
pH Range	0-14			
Design flux (m^3 / m^2 membrane x day)	0.3 – 0.8 (12 – 33 LMH)			

Advantages:

1. Good chemical tolerance.
2. High tensile strength.
3. High aperture ratio（Max. 90%) with high flux.
4. High temperature resistance.(Max. 200℃).
5. Superior hydrophilicity.
6. Unique structural arrangement.
7. Specific microstructure.
8. Alkali washing.
9. Dry preservation and easy to transport.


Working PTFE MBR


PTFE Membrane Silk


Used in leachate for nine years


Brand new


MBR unit

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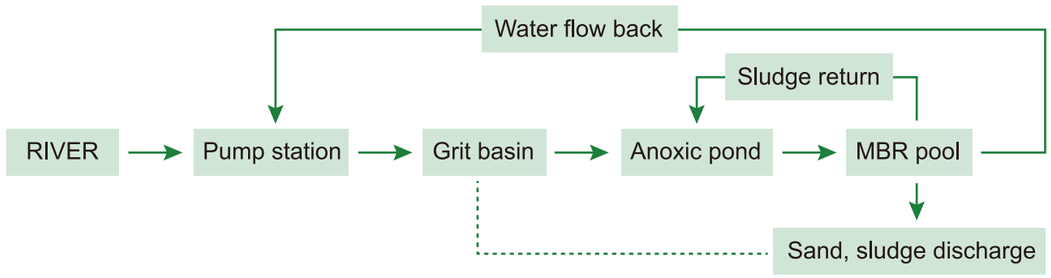
5) Project cases:

1) 1500Ton/D river treatment project

Project Overview:

This project is a big river treatment project which local government required because the water in the river is very dirty due to domestic sewage discharge. And our engineer design a total equipment according to the water quality, water volume, temperature

Place: A town in Chinese.
Water yield: 1500m³/d
Project period: 3 months
Design routing:



2) 1500T/D Malaysian palm oil project

Project Overview:

This is a Palm oil factory which need water treatment.

Place: Malaysia
Water yield: 1500T/D
Qty.: 3600 m^2 MBR membranes
Project period: 6 months

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3) 60000T/D One glove manufacturer

Project Overview:

A chinese glove manufacturer made many waste water every year and it was published by the local environmental department. The factory contact with us and let us supply water solutions for them.

Place: Nanjing
Water yield: 60000T/D
Qty.: 264000 m^2 MBR membranes
Project period: 6 months