



Focus on Subdivided Fields      Technology  
Innovation of Special Membrane Separation

Poseidon (JiangSu) New Material Technology Co., Ltd

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## Submerged Flat Membrane Module for MBR

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# The enterprise culture

## Enterprise Mission

Industrialize science and technology to create value for human

## Enterprise Vision

Taking the beautiful China of “practicing green development and jointly building green waters and mountains” as its own mission, we have innovated and developed special membrane materials, membrane products and applications, and become a world-leading intelligent manufacturing enterprise of special membrane.

## Business Philosophy

To be a technology-based platform for employees to pursue continuous innovation and entrepreneurship by “creating, sharing and co-developing”

## Enterprise Spirit

Be grateful, enterprising, innovative, hardworking and pragmatic

## Enterprise Culture

People-oriented, driven by continuous innovation, move customers with integrity, forge a future with high quality



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## Company Introduction

Poseidon (Jiangsu) New Material Technology Co., Ltd (Poseidon New Material), located in Intelligent Equipment Enterprise Harbor, Xinbei District, Changzhou City ( the capital of new energy ) , Jiangsu Province, is a national high-tech enterprise focusing on the independent research and development, production, sales and service of high flux, constant hydrophilic tubular/sprial ultra-nano-filtration membranes and specialty filtration membranes products.

The company has developed POSEIDON series membrane products with high pollution resistance, oil resistance, high flux and easy cleaning by adopting heteronaphthalene biphenyl polyaryl ether series of high-performance membrane materials with 3D structural units. It breaks through the boundary of traditional organic and inorganic membranes, and at the same time has the performance characteristics of constant hydrophilicity, high temperature resistance, acid and alkali resistance, high flux, and easy recovery from backwashing.



High-tech Enterprise Certificate



Certificate of Dual Innovation Talent



Quality Management System Certificate



Occupational Health and Safety Management System Certification



Environmental Management System Certificate

The founder of Poseidon New Materials was selected as one of Jiangsu Province's "Shuangchuang Talents" in 2022 (No. JSCRC2022046), and the company was selected as a national high-tech enterprise in 2022 (No. GR202232014490).

The company's high-performance separation membrane series products have independent intellectual property rights, currently has 16 authorized patents; 5 softwritings; 3 authorized trademarks. The existing production line of special tubular/sprial membrane, annual output of 1 million square meters of high-performance separation membrane products and other production lines, the production process is in strict accordance with international standards, abide by the ISO9001 quality management system, and successfully passed the environmental management system certification, occupational health and safety management system certification.

The key technology products are widely used in the deep treatment of garbage leachate, pharmaceutical wastewater, chemical wastewater, municipal wastewater, etc., as well as for biomedical concentration and purification, food and beverage turbidity removal, etc., It has unique technological advantages in the process of material resource utilization.



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# Poseidon (JiangSu) New Material Technology Co., Ltd



Key Equipment for Continuous Production of "Membrane Core"

The company was founded by Changzhou Huiheng Membrane Technology Co., Ltd, the holding subsidiary of Willey Environmental Protection Technology Group Company (stock code: 300190) and a scientific research team composed of a group of experts in the field of membrane technology, and the company has been selected as the 14th batch of Changzhou Dragon City Talent Leading Innovation and Entrepreneurship Talent Project in 2020.

In the process of core product development of high-end ultrafiltration membrane equipment and supporting non-standard sewage treatment equipment, the company emphasizes the combination of production, learning, research and use. With Jiangnan University, Changzhou University, Jiangsu University of Science and Technology, Dalian University of Technology, Shenyang University of Science and Technology and so on, the company has established a strategic cooperative relationship, which provides strong support and guarantee for the continuous development and innovation of high-end membrane products and supporting equipment.



Key Equipment for Continuous Spinning



Innovation



R&D



Manufacturing



Services

Poseidon New Materials has always insisted on creating a technology-based platform for continuous innovation and entrepreneurship with its employees, "Co-creation, Co-Sharing and Co-development". Our pre-sale and after-sale equipped with specialized personnel to answer the actual problems encountered in the use of customers, the whole logistics tracking, to ensure that the delivery of orders as promised, so that customers have no worries. We believe that the innovation of separation membrane is not only the innovation of technology, but also the pursuit of better life for human beings. We will continue to work hard to contribute to the creation of a cleaner and healthier future and make the world more beautiful because of us.

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# Patents & Test Reports

## Invention Patent



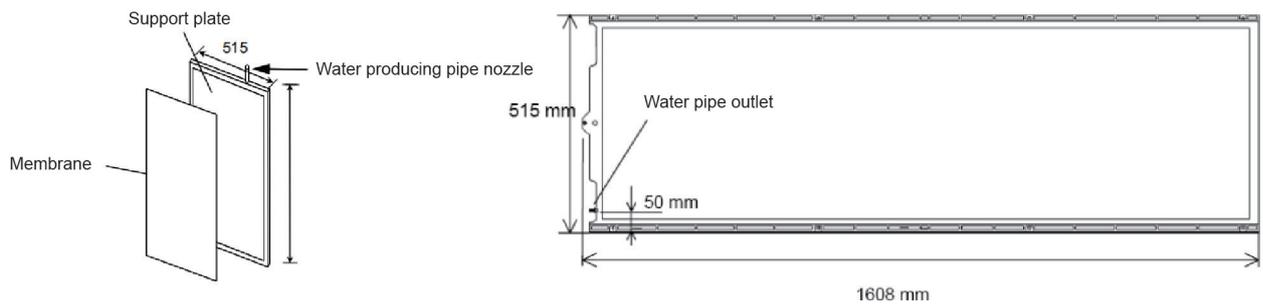
## Utility model patents



## Test Reports



## Structure of membrane element



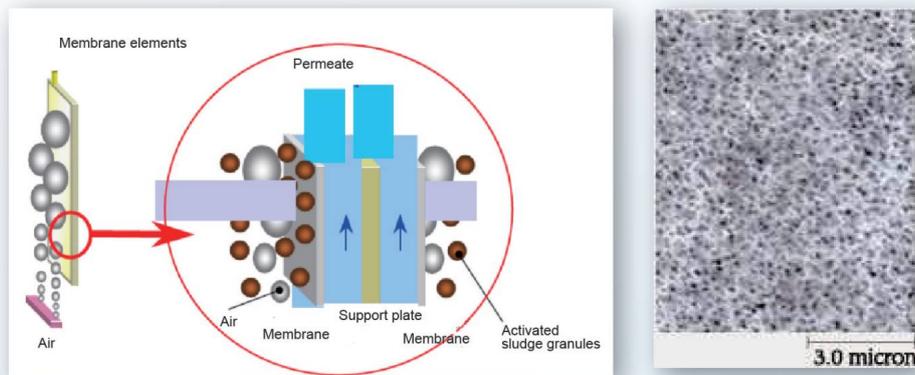
SCHEMATIC DIAGRAM OF MEMBRANE ELEMENT STRUCTURE

PTS-MBR-J-FS140 series MBR flat membrane element is composed of a composite membrane with PVDF (polyvinylidene fluoride) functional layer and PET non-woven fabric as the base layer. This structure ensures the high physical strength and chemical stability of the MBR flat membrane element.



FLAT MEMBRANE ELEMENT

The surface porosity of PTS-MBR-J-FS140 flat membrane element is large and uniform, and the pore size distribution is concentrated in a small range, with an average pore diameter of 0.08  $\mu$  m. Such structure ensures superior water quality and excellent water permeability, and is not prone to fouling.



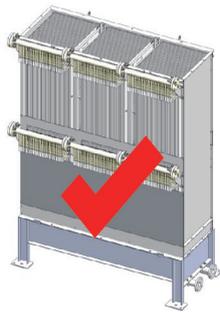
<b>Model</b>	PTS-MBR-J-FS140
<b>Shape</b>	Flat membrane
<b>Usage</b>	Solid-liquid separation of activated sludge
<b>Effective area of membrane (m<sup>2</sup>)</b>	1.4
<b>Diameter of membrane pore (pm)</b>	0.08 (can be specified by customer)
<b>Material</b>	PVDF □ CPVCs PTFE
<b>Material of lining plate</b>	ABS
<b>Overall dimension (mm)</b>	515x1608x13.5
<b>Weight (kg)</b>	4.8/-8.0 (dry/wet)



## Advantages

### ◆ Small footprint and space saving

The MBR flat membrane process can significantly increase the sludge concentration of the activated sludge tank and does not require a secondary sedimentation tank, so that the occupied space can be greatly saved.



Flat membrane module



Secondary sedimentation tank

### ◆ Stable effluent quality and high transparency

The MBR flat membrane can intercept almost all microorganisms, especially the microorganisms which are difficult to precipitate and have slow propagation speed. The process of acclimation and increment of activated sludge is greatly shortened, the depth of treatment and the ability of the system to resist impact are enhanced, and the effluent quality is very stable.

### ◆ Convenient operation management and easy for maintenance

The traditional aerobic activated sludge treatment process has sludge bulking phenomenon when operated under the condition of high sludge load, so that the system can not operate normally and the effluent cannot reach the standard. The MBR flat membrane process uses membrane suction to separate sludge from water, so the influence of sludge bulking on MBR flat membrane effluent is far less than that of the traditional process, so the operation and management is very convenient. High degree of automation and easy for maintenance.

◆ Strong adaptability and long service life

The average service life of MBR flat membrane process is about 5 years in domestic sewage treatment and municipal engineering sewage treatment projects, and about 3 years in chemical wastewater, pharmaceutical wastewater and other projects. In addition, the MBR flat membrane process can also be applied to engineering projects such as landfill leachate, electroplating wastewater treatment, organic chemical wastewater which is difficult to biodegrade, and the like.



Pharmaceutical wastewater



Landfill leachate



Municipal engineering sewage

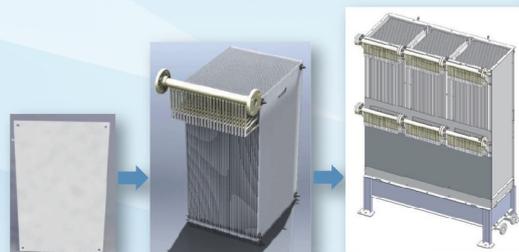


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## List of Products

Model		FS140-50	FS140-100	FS140-200	FS140-200D	FS140-400D
Number of membrane elements (piece)		50	100	200	200	400
Structure of membrane module box		Single-layer single-row	Single-layer single-row	Single-layer double-row	Double-layer single-row	Double-layer and double-row
Size	Width (MM)	810	810	840	810	840
	Length (MM)	950	1620	3260	1620	3260
	Height (MM)	2100	2100	2100	4160	4160
Weight KG	Membrane module (dry weight)	400	695	1430	1365	2710
	Aeration tank (dry weight)	40	65	150	65	150
	Membrane element box (dry weight)	360	630	1280	1300	2560
	Membrane element box (wet weight)	690	1240	2480	2500	4980
Effective area (M2)		70	140	280	280	560
Treated water quantity (M3/D) Continuous, domestic sewage		8-53	15-105	30-210	30-210	60-420
Treated water quantity (M3/D) Continuous, industrial wastewater		8-35	15-70	30-140	30-140	60-280
Aeration capacity (M3/MIN)		0.5-1	1-2	2-4	1.3-2	2.6-4
Frame material		SUS304 stainless steel (316SS or 316LSS stainless steel can be customized)				
Aeration pipe pattern		ABS, P=1.0MPA, Flange				
Aerator pipe coupling		DN40	DN40	DN50	DN40	DN50
Water collecting pipe pattern		UPVC, P=1.0MPA, Flange				
Water collecting pipe coupling		DN40	DN50	DN65	DN50	DN65
MLSS (MG/L)		8000-18000				
Outlet water turbidity (NTU)		<1.0				
Effluent suspended solids (MG/L)		<3.0				
Transmembrane differential pressure (KPA)		5-20				
Cleaning and dosing differential pressure (KPA)		5-10				
Cleaning agent and cleaning concentration		NACLO (available chlorine concentration): 2000-6000 MG/L (near PH12) Oxalic acid: 0.5-1.0 WT% Citric acid: 1.0-3.0 WT%				
PH value		5-10				
Operating humidity (°C)		5-40				



Flat membrane module  
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## Application case

### River Treatment--Yandang River Project in Xuejia, Changzhou, Jiangsu Province (Flat Sheet MBR)

INTEGRATED FLAT MEMBRANE STACK: 15 GROUPS  
(FLAT MBR-150 TYPE), MEMBRANE AREA 2250  
SQUARE METERS

BLACK-SMELLING WATER BODY OF THE RIVER:  
INFERIOR FIFTH CLASS WATER BODY

FLAT SHEET MBR PRODUCTION CAPACITY:  
800-1000T/D

PERMEATE QUALITY: CLASS IV WATER

RUNNING TIME: OCTOBER 2019



### Ecological Management--Water Environment Treatment of inland small river water in Guanjingyuan, Yao Guan Town, Changzhou (AO-Flat Sheet MBR)

INTEGRATED FLAT MEMBRANE STACK: 8 GROUPS (FLAT MBR-150), MEMBRANE AREA 2400 SQUARE METERS

WASTEWATER TYPE: MISCELLANEOUS DOMESTIC WATER + DOMESTIC WATER

PRODUCTION SCALE: 800-1000T/D

PERMEATE QUALITY: □URBAN WASTEWATER RECYCLING URBAN MISCELLANEOUS WATER QUALITY□  
(GB/T 18920-2002)

RUNNING TIME: JUNE 2018





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## Application case

### Water Treatment – Xinjiang Shihezi Water Treatment Station (AO-Flat Sheet MBR)

INTEGRATED FLAT SHEET MEMBRANE STACK: 8 GROUPS (FLAT SHEET MBR-150), MEMBRANE AREA 2400 SQUARE METERS

WASTEWATER TYPE: MISCELLANEOUS DOMESTIC WATER AND DOMESTIC SEWAGE

PRODUCTION SCALE: 800-1000T/D

EFFLUENT INDEX: "URBAN WASTEWATER RECYCLING URBAN MISCELLANEOUS WATER QUALITY" (GB/T 18920-2002)

RUNNING TIME: APRIL 2013



### Refinery wastewater (60%) + domestic wastewater (40%) (curtain MBR and Flat sheet MBR)

ULTRAFILTRATION MEMBRANE POOL: 4 GROUPS (1 GROUP CURTAIN MBR AND 3 GROUPS FLAT SHEET MBR)

SLUDGE CONCENTRATION IN MEMBRANE TANK: 3000-8000 MG/L

CURTAIN-TYPE MBR ULTRAFILTRATION MEMBRANE (D GROUP): 8 GROUPS OF CURTAIN-TYPE MEMBRANE (72 PIECES/GROUP, TOTAL 576 PIECES, 8640 SQUARE METERS)

PRODUCTION SCALE: 2800-3000T/D

TURBIDITY OF PERMEATE: <0.5 NTU

TOTAL PRODUCTION OF THE SYSTEM: 10080-12480 T/D

TURBIDITY: <1.0 NTU

RUNNING TIME: SEPTEMBER 2017





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## Application case

### Deep treatment and reuse of refinery wastewater (UF-RO- pressure ultrafiltration)

NUMBER OF ULTRAFILTRATION MEMBRANES ELEMENTS: 60 PIECES/GROUP, TOTAL 10 GROUPS OF 600 PIECES (MEMBRANE REPLACEMENT)  
PRODUCTION SCALE: 14400-16000T/D  
TURBIDITY OF PERMEATE: 0.2-0.5NTU  
SDI:<3  
RUNNING TIME: SEPTEMBER 2018



### Deep treatment and reuse of refinery wastewater (UF-RO - pressure ultrafiltration)

超QUANTITY OF ULTRAFILTRATION MEMBRANE: 50PCS/GROUP, 1 GROUP IN TOTAL  
PRODUCTION SCALE: 1320-1560T/D  
TURBIDITY OF PERMEATE: 0.5-1 .ONTU  
TURBIDITY : <0.3 NTU  
RUNNING TIME: MARCH 2017





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## Application case

### Beautiful countryside domestic wastewater treatment--Sichuan Bazhong Guangong Town Sewage Treatment Station (AO-MBR)

INTEGRATED CURTAIN MEMBRANE STACK: 2 GROUPS (CURTAIN MBR-HF20-36), MEMBRANE AREA 1440 SQUARE METERS

WASTEWATER TREATMENT SYSTEM: CENTRALIZED RURAL DOMESTIC SEWAGE TREATMENT

CURTAIN-TYPE MBR PRODUCTION SCALE: 400-500T/D

PERMEATE QUALITY: CLASS A STANDARD OF "POLLUTANT EMISSION STANDARDS FOR URBAN SEWAGE TREATMENT PLANTS" (GB18918-2002).

RUNNING TIME: NOVEMBER 2020



### Ethylene recycling water sewage water reuse (curtain MBR)

ULTRAFILTRATION MEMBRANE POOL: 4 GROUPS (CURTAIN MBR)

TURBIDITY OF PERMEATE: < 5NTU

CURTAIN-TYPE MBR WATER PRODUCTION: 4320-4800T/D

TURBIDITY: <0.5 NTU

RUNNING TIME: MARCH 2014





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## Application case

### Waste leachate hardness removal--Changsha Heiyufeng ash project of landfill plant (tubular membrane hardness removal and evaporation)

PROCESS: DOUBLE-ALKALI METHOD AND TUBULAR MEMBRANE HARDNESS REMOVAL AND RO CONCENTRATION AND EVAPORATION (TWO 8-INCH TUBULAR MEMBRANE MODULES)

WASTEWATER TREATMENT SYSTEM: ZERO DISCHARGE OF LEACHATE WASTEWATER FROM LANDFILLS

WATER QUANTITY TREATED: 50T/D

EFFLUENT QUALITY: HARDNESS OF EFFLUENT FROM TUBULAR MEMBRANE <20 MG/L; LEACHATE IS EFFECTIVELY DISPOSED OF, AND PRODUCED WATER 18 USED FOR ASH FLUSHING

RUNNING TIME: JUNE 2022



### Deep treatment of coking wastewater--Depth treatment of wastewater from Shanxi Wangqiao Coal chemical wastewater treatment and recycle (Biochemical-UF-RO)

PROCESS: UF+RO

WASTEWATER TYPE: PRODUCTION WASTEWATER AND HIGH-SALT WASTEWATER

PRODUCTION SCALE: 20,000 TONS/D PRODUCTION WASTEWATER AND 10,000 TONS/D OF HIGH-SALT WASTEWATER

EFFLUENT QUALITY: TURBIDITY<0.5NTU; SDK3

RUNNING TIME: AUGUST 2022





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Serial No.	Application category	Project name	Scale (T/D)
1	Coal chemical wastewater	Shanxi Changzhi Xiangyuan County Wangqiao New Type Coal Chemical Industrial Park Sewage treatment	30000
2	Inorganic chemical wastewater	Tianji Coal Chemical Group Company Limited	15000
3	Coal chemical wastewater	Xinjiang Xinye Energy & Chemical Industry Co., Ltd.	12000
4	Coal chemical wastewater	Qian'an Sinochem Coal Chemical Co., Ltd.	10000
5	Paper wastewater	Tengzhou City, Shandong Province, JiSuo town sewage treatment plant	10000
6	Airport comprehensive wastewater	Shanghai Zhanlangi Engineering Technology Co., Ltd.	5300
7	River management	Jiangsu Sucheng Environmental Technology Co., Ltd. (14 sets of integrated equipment 500T/D)	5000
8	Rural sewage	Jiangsu Changzhou Xinbei District sewage collection and treatment full coverage of rural sewage treatment facilities	4000
9	Municipal sewage	Hangzhou Oulu Environmental Technology Co., Ltd.	4000
10	Surface water	Shanghai Yuanzhong Environmental Protection Technology Co., Ltd.	2600
11	Chemical wastewater	Lanzhou Hewei Environmental Protection Technology Co., Ltd.	2000
12	Domestic sewage	Deyang Shanshui Environmental Engineering Co., Ltd.	2000
13	Garbage leachate	Changzhou Huiheng Membrane Technology Co., Ltd.	2000
14	Domestic sewage	Wujin Yincun Vocational Education Park Water Reuse Project	1500
15	Electroplating wastewater	Changzhou Wujin High-tech Zone Recycled Water Treatment Project	1500
16	Garbage leachate	WELLE Environmental Group Co. Ltd.	1500
17	Domestic sewage	Deyang Shanshui Environmental Engineering Co., Ltd. (12 sets of integrated equipment)	1470
18	Industrial wastewater	Tangshan Hengdao Technology Co., Ltd	1400
19	Domestic sewage	Chishui Bishui Qingyuan Environmental Technology Co., Ltd	1260
20	Domestic sewage	Jiangsu Wujin Luoyang Town Sewage Treatment Station Process Renovation Project	1200
21	Electroplating wastewater	Conghua Huasheng Electroplating Hardware Comprehensive Water Treatment Project	1000
22	Steel wastewater	Heilongjiang Jianlong Vanadium Industry Co., Ltd	1000
23	Domestic sewage	Frunmir Industrial Technology (Shanghai) Co., Ltd	1000
24	Rehabilitation of water ecosystems	Yandang River Water Quality Improvement in Xuejia Town, Xinbei District, Changzhou, Jiangsu Province (National 135 Water Special Demonstration)	1000
25	Domestic sewage	Anhui Tongling Datong Town Rural Joint Environmental Improvement Project	800
26	Mine water	Shanxi Tiejue Environmental Protection Technology Co., Ltd	800
27	Domestic sewage	Shanxi Tiejue Environmental Protection Technology Co., Ltd. (Distributed Integrated Equipment)	650
28	Domestic sewage	Dongzhi County Jiazeli Environmental Technology Co., Ltd. Rural Sewage Integration Project (Distributed)	600
29	Domestic sewage	Shandong Expressway Service Area Project (Distributed)	600
30	Water Reuse	Jiangsu Xinlian Automation System Co., Ltd	500
31	Mine water	Shanxi Tiejue Environmental Protection Technology Co., Ltd	500
32	Domestic sewage	Beijing Dongbang Dingsheng Environmental Engineering Technology Co., Ltd	500
33	Leachate	Ningxia Yinchuan Huimin Village Leachate Treatment Project	500
34	Domestic sewage	Changzhou Silk Weaving Factory Water Treatment Project	500
35	Leather wastewater	Hebei Boyao Industrial Park Operation Co., Ltd	400
36	Garbage leachate	Xi'an Kangrun Environmental Protection Engineering Co., Ltd	300
37	Domestic sewage	Jiangsu Ziyin Electronic Circuit Copper Containing Wastewater Renovation Project	300
38	Garbage leachate	Xi'an Fumao Electromechanical Technology Co., Ltd	200
39	Pharmaceutical wastewater	Changzhou Sunshine Pharmaceutical Co., Ltd. Sewage Treatment Project	200
40	industrial wastewater	Jianghai Chemical Group Co., Ltd	200

**Leveraging the power of Ultra-Nanofiltration,  
digging for the gold of wastewater!  
Restoring the water of nature,  
gifting green waters and mountains!**

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Technology Co., Ltd**

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