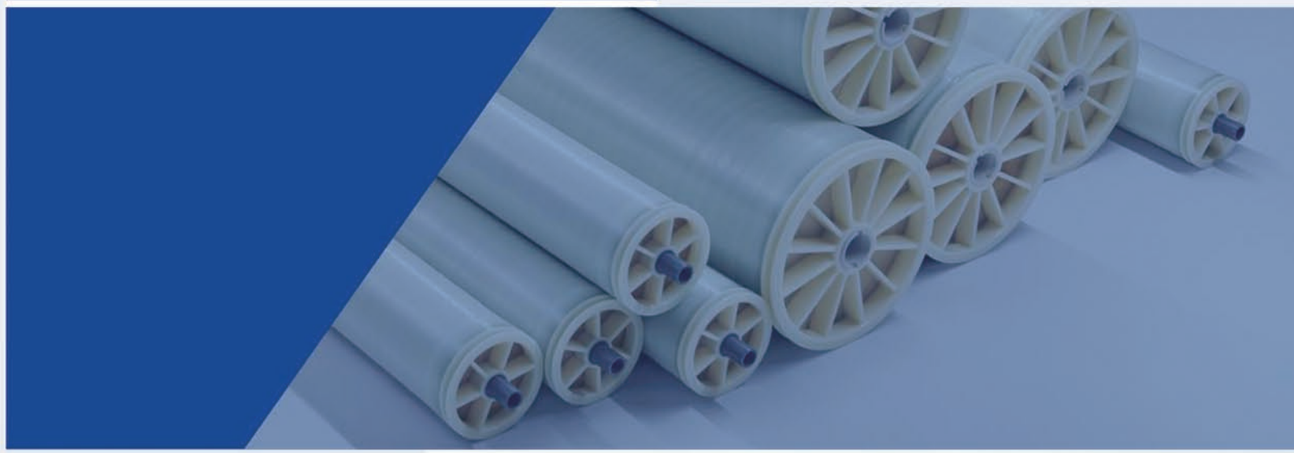
JX Purification



Ro membrane & Modules

- Working principle
- Specification & Parameters
- Detailed drawings
- Project Cases

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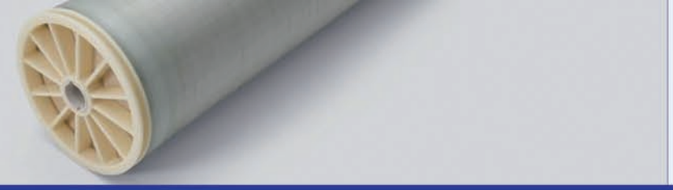
Ro membrane & Modules



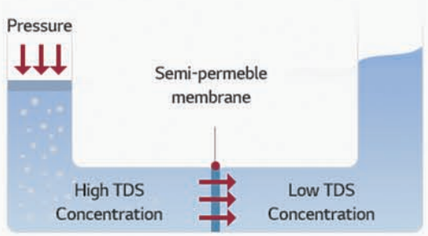
1.Working principle

Reverse osmosis is the process of applying a pressure greater than the osmotic pressure of the solution on the side of the concentrated solution, forcing the water molecules to enter the dilute solution through the semi-permeable membrane in the reverse direction (opposite to the direction of natural osmosis). The semipermeable membrane flows to dilute solutions, while most of the solutes (dissolved solids) cannot pass through the membrane and are trapped.

What is reverse osmosis?

The two solutions with concentration are separated by a semi-permeable membrane (Membrane). After a certain period of time, the solution with lower concentration will move to the side with higher concentration. The difference in water level that occurs is called 'osmotic pressure', and the reverse osmosis pressure is The osmotic pressure, reverse loading, is a water purification method in which only water molecules can pass through a semipermeable membrane as the following pic.

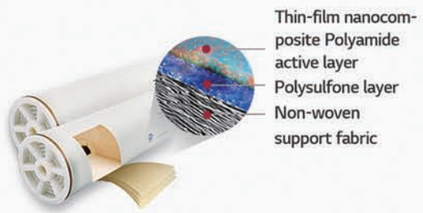
Osmosis



Reverse osmosis

Structure of RO membrane element

Structure of an RO Membrane



2.Specification & Parameters

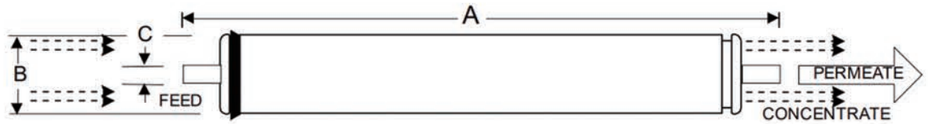
JX can supply **LP (Low pressure)** series, **FR(fouling resistance)**series,**BW(Brackish water)**series, **SW(Sea water)series.**

LP Series

The target water source is low to medium salinity surface water/groundwater, etc., it can achieve the same high water flux and high salt rejection rate as conventional low pressure membranes under extremely low operating pressure conditions. Its operating pressure is about 2/3 of the conventional low-pressure membrane operating pressure, and the desalination rate reaches 99.5%. Because the operating pressure is low and the salt rejection rate is high, the economic benefits are obvious.

LP is suitable for desalination treatment of drinking water sources such as surface water/groundwater/tap water/municipal water with a salt content below 2000ppm.

Main uses: drinking water, purified water production, boiler feed water, food processing and pharmaceutical production water.



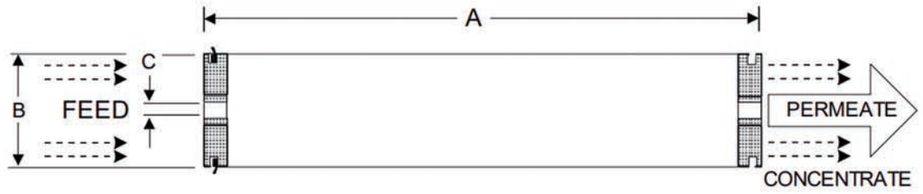
Element Details**

A, inches (mm)	B, inches (mm)	C, inches (mm)
40.0 (1016)	3.95 (100.3)	0.75 (19.1)

Core tube extension = 1.05" (26.7 mm)

LP 4" MEMBRANE ELEMENTS

Model	JXLP11-4040	JXLP12-4040	JXLP11-4040
Effective membrane area ft2(m2)	85(7.9)	85(7.9)	85(7.9)
Operating pressure psi(MPa)		150(1.03)	
Average yield GPD(m3/d)	2700(910.2)	2400(9.1)	2700(910.2)
Salt rejection (%)	98 (min97.5)	99(min 98.5)	98 (min97.5)
Recovery rate (%)	15		
Max. operating pressure psi(MPa)	600(4.14)600(4.14)		
Max. inflow temperature(°C)	45		
Max. inflow SDI	5		
Max. water flow GPM(m3/h)	16(3.6)		
Free chlorine concentration	<0.1		
Continuous running water pH range	3-10		
Chemical cleaning water pH range	2-11		
Max. single membrane element pressure drop	15 (0.1)		



Element Details**

A, inches (mm)	B, inches (mm)	C, inches (mm)
40.0 (1016)	7.89 (200)	1.125 (28.6)

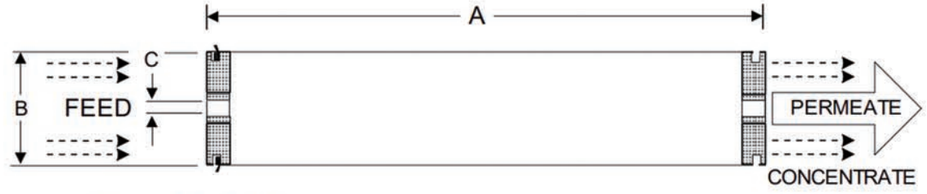
LP 8" MEMBRANE ELEMENTS

Model	JXLP21-8040	JXLP22-8040	JXLP23-8040	JXLP24-8040
Effective membrane area ft2(m2)	365(33.9)	400(37.0)	400(37.0)	400(37.0)
Operating pressure psi(MPa)	150(1.05)	150(1.05)	150(1.05)	150(1.05)
Average yield GPD(m3/d)	11,000(41.6)	13,200(49.9)	12,100(45.7)	10,500(38.7)
Salt rejection (%)	99(MIN98.5)	98(min97.5)	99(min98.5)	99.5(min99.0)
Recovery rate (%)	15			
Max. operating pressure psi(MPa)	600(4.2)			
Max. inflow temperature(°C)	45			
Max. inflow SDI	5			
Max. water flow GPM(m3/h)	75(17)			
Free chlorine concentration	<0.1			
Continuous running water pH range	3-10			
Chemical cleaning water pH range	2-11			
Max. single membrane element pressure drop	15 (0.1)			

FR Series

FR series of fouling resistant aromatic polyamide composite membrane element is developed by JX for complex water quality. FR series element with special membrane preparation process, it improved the hydrophilicity, charge characteristic and roughness, can effectively reduce the breeding of bio-fouling and adsorption of pollutants in the membrane surface. The element is applied a special 34 mil spacer design, which effectively reduced fouling and pressure drop, with more durable on cleaning can extent the service life.

FR series of fouling resistant membranes normally suitable for treatment of complex water source with TDS less than 10000 ppm. It is mainly used for purification of surface water, mining waste water, municipal reclaimed water, industrial waste water, RO brackish water.



Element Details**

A, inches (mm)	B, inches (mm)	C, inches (mm)
40.0 (1016)	7.89 (200)	1.125 (28.6)

Module	Active Membrane Area	Average Permeate	Stable rejection	Min rejection
	ft2(m2)	GPD（m³/d）	Rate（%）	Rate（%）
JXFR-8040	400（37.2）	10500（39.7）	99.7	99.6

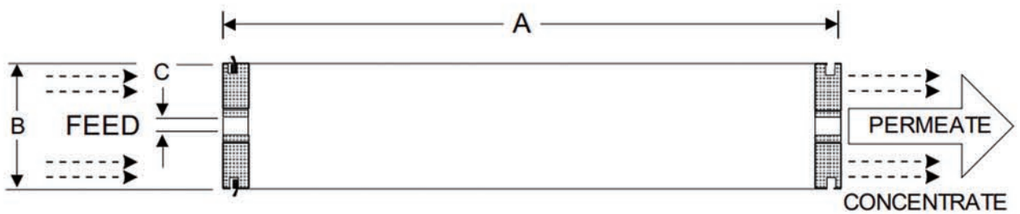
Test conditions：	
Testing pressure	225Psi（1.55Mpa）
Testing solution temperature	25℃
Concentration of testing solution	2000ppm
pH value of testing solution	7
Recovery rate of Single element	15%
Feed spacer	34mil（0.86mm）
Operation limits & conditions：	
Max. Working Pressure	600psi（4.14Mpa）
Max. Temperature of Feed water	45℃
Max. Volume of Feed water	75gpm（17 m3/h）
Max. Feed water SDI_{15}	5.0
Max. Feed water Turbidity	1.0NTU
pH Range of Feed water during Continuous Operation	2～11
pH Range of Feed water during Chemical Cleaning	1～13
Residual Chlorine Concentration of Feed Water	＜0.1ppm
Max. Pressure Drop of Single Membrane Element	15psi（0.1Mpa）
Max. Pressure Drop of Single Pressure Vessel with Six elements	50psi（0.34Mpa）

SW Series

SW is suitable for reverse osmosis membrane elements installed at sea and on land. It has the characteristics of high pressure resistance (up to 6.9Mpa), low operating cost, good desalination performance, and stable desalination effect. Drinking water from seawater can be guaranteed under high recovery conditions.

SW series membrane elements are suitable for various industrial water treatment such as seawater desalination, high-concentration brackish water desalination, power plant boiler make-up water, etc., and can also be used in various fields such as concentration and recovery of wastewater reuse.

Main uses: seawater desalination, high concentration brackish water desalination, industrial water treatment, waste water reuse.

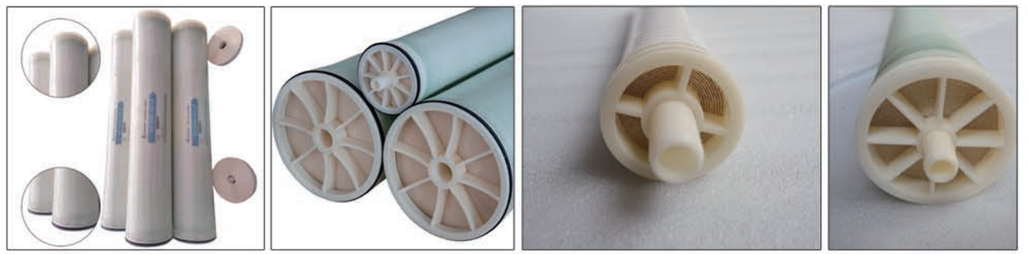


Element Details**

A, inches (mm)	B, inches (mm)	C, inches (mm)
40.0 (1016)	7.89 (200)	1.125 (28.6)

Module	Active Membrane Area	Average Permeate		Min rejection	B rejection
	ft2(m2)	GPD（m^3/d）		Rate（%）	Rate（%）
JXSW-8040	400（37.2）	7500（39.7）		99.7	93
Test conditions：					
Testing pressure			800Psi（5.5Mpa）		
Testing solution temperature			25℃		
Concentration of testing solution			32000ppm Nacl，5ppm B.		
pH value of testing solution			8.0		
Recovery rate of Single element			8%		
Feed spacer			34mil（0.86mm）		
Operation limits & conditions：					
Max. Working Pressure			1200psi（8.27Mpa）		
Max. Temperature of Feed water			45℃		
Max. Volume of Feed water			75gpm（17 m3/h）		
Max. Feed water SDI_{15}			5.0		
Max. Feed water Turbidity			1.0NTU		
pH Range of Feed water during Continuous Operation			2～11		
pH Range of Feed water during Chemical Cleaning			1～13		
Residual Chlorine Concentration of Feed Water			＜0.1ppm		
Max. Pressure Drop of Single Membrane Element			15psi（0.1Mpa）		
Max. Pressure Drop of Single Pressure Vessel with Six elements			50psi（0.34Mpa）		

3.Detailed drawings



4.Project cases

Heavy metal wastewater

Project overview: A electronic Co.,LTD in Shandong Province mainly produces electronic copper foil, copper clad laminate and printed circuit board, reaching the annual production capacity of the company 18000 tons, 18000㎡ and 20 thousand ㎡ respectively.

Water yield: 3200T/D

Project period: 3 months

Processing routing: Pretreatment, UF, RO

Food industry wastewater

Project overview: A food manufacturer in Singapore which produce grains, soybean protein isolation,livestock and poultry industry and so on. There are much wastewater which need to be handled.
Water yield: 4000T/D
Project period: 4 months
Processing routing: Milipore filter,UF, NF, RO

Electrophoresis paint industry

Project overview: This manufacturer make machines and it has much industrial wastewater which neeed to be handled.
Water yield: 500T/D
Project period: 1 months
Processing routing: Pretreatment, UF, RO

JX Purification can give you the following service.

- Best quality with reasonable price
- Offer OEM services for all customers
- Fast ,accurate quotes and flexible payment
- Strong technical surpport,20 more year experience
- Membrane high mechanical strength, stable water quality, operation flux is big, long service life

Application & Solution