

Water Desalination Construction



Products Presentation
RPIT-MY24050705

SEAWATER REVERSE OSMOSIS

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Designed to convert seawater to drinking water, these seawater desalination systems use high quality membranes and our proven technology to give dependable performance and to comply with WHO Standard for Safe Drinking Water of less than 500 ppm of Total Dissolved Solids. We offer a full range of both standard and custom engineered Seawater Reverse Osmosis Systems for applications ranging from yachts, cruise ships to municipalities, resorts, military, and various industrial applications.



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VANDTECH® X3–Series Reverse Osmosis Systems are engineered for seawater desalination and other high total dissolved solids (TDS) applications requiring high pressure pumps. The X3–Series Reverse Osmosis Systems are rated to handle total dissolved solids as high as 45,000.

The X3–Series Reverse Osmosis Systems range in capacity from 5.6 to 27.8 gallons per minute (8,000 to 40,000 gallons per day) utilize a clean design that allows for convenient installation, user–friendly operation.

Featuring robust components for enhanced performance, the X3–Series Reverse Osmosis Systems include a duplex stainless steel axial piston pump, high pressure hoses, stainless steel valving and FRP membrane housings with duplex stainless steel side ports.



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FEATURES

- 8-inch Low Energy Seawater Membrane Elements
- 8-inch Fiberglass Membrane Housings with Duplex Stainless Steel Side Ports (1000 psi)
- 2 Stage Glass-Reinforced, Polypropylene, Non-Metallic Pre-Filtration Housings
- 5-Micron Sediment Pre-Filter (Stage 1)
- 1-Micron Sediment Pre-Filter (Stage 2)
- Duplex Stainless Steel Axial Piston Pump
- Low and High Pressure Shut-Off Switch
- Pump Pressure Relief Valve
- S-150 Pre-Programmed Computer Controller with Soft Start
- Permeate and Concentrate Rotameters
- Permeate TDS Monitoring
- Pre- and Post-Filter 316L Stainless Steel Pressure Gauges Pump and Concentrate 316L Stainless Steel Pressure Gauges
- PVC Feed Motorized Ball Valve
- 316L Stainless Steel Needle Concentrate Valve
- Epoxy Powder Coated Carbon Steel Frame
- Sch80 Low Pressure PVC Piping



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FEATURES

- Electroplated 316L Sch80 Stainless Steel Piping
- Nitrile High Pressure Hose with Duplex Stainless Steel Connections
- Clean-In-Place (CIP) Ports with Valves
- Permeate Sample Ports
- Chemical Feed Port OPTIONS AND UPGRADES
- S-200 Computer Controller
- Permeate and Concentrate Digital Paddlewheel Sensors
- VFD (Variable Frequency Drive)
- Programmable Logic Controller (PLC) with Touch Screen
- pH Sensor • ORP Sensor
- Clean-In-Place Skid-Mounted System
- Chemical Feed System
- 8-inch Low Energy Seawater Membrane Elements (440 SF)
- Voltage Options: 220VAC 3PH
- 60Hz, 220VAC 3PH 50Hz, 380VAC 3PH 50Hz
- Chemical Feed Power Outlet
- Composite Permeate Flush Solenoid Valve
- PVC Permeate Divert Motorized Ball Valve
- 460VAC 3PH 60Hz



SEAWATER REVERSE OSMOSIS

THE PERFECT BACKWASH MICRO FILTER

The VPMF system introduces the Perfect Backwash Micro Filter, a unique Variable Pore-Structure Micro Filter, with a wide variety of applications and uses offering cost effective and reliable filtering from 0.2μ to 25μ .



Even though there are various technologies used for separating contaminants from polluted water, one of the simplest methods is filtering. Filtering has been identified as one of the best separation technologies because it prevents secondary contamination and does not simply convert the pollutants into other chemical characteristics or residue.

Most existing filtration technologies consisted of conventional and traditional sand filters, spun-bonded or melt-blown cartridge filters, highly polymerised compound, ceramic and membrane filters, and metal filters. Those products have been made of various kinds of raw materials and pore sizes from several tens of micron to ion size.

Although these technologies are capable of filtering well, they are unable to be used at the wider application ranges pertinent to the industrial field. Applications have often been limited to purification plants and other very simple treatment applications. The limitation was essentially the result of poor performance in backwashing due to the fixed pore structure - it was very difficult

to re-penetrate the fouled pore structure in anything other than ideal conditions.

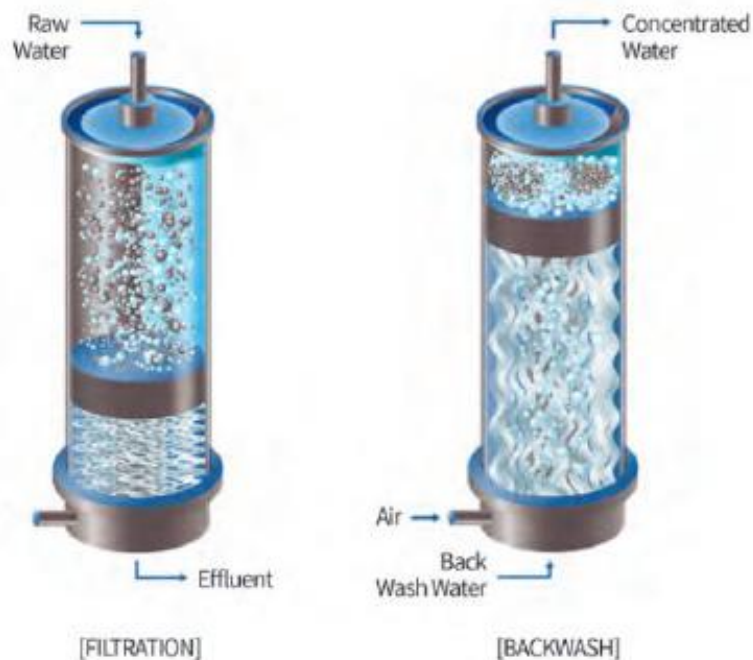
The VPMF (Variable Pore-structure Micro Filter) forms a temporary filter structure by compressing the laminated micro fiber layers according to water flow, and then, by backwashing, separates the laminated layers of the filter structure. In other words, the VPMF conducts a depth filtering against laminated micro layers, and then easily separates the pollutants gathered between the micro fibres during the dissolution of the layers using both water and air pressure. The combined water and air pressure also provides a vigorous shaking of the fibre layers for total contaminant cleaning.



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What is the VPMF?

Variable Pore-structure Micro Filter



Filtration Process

The inflow of raw water through its inlet gradually compresses the cylindrical filter. If the filter pressure reaches critical (or optimum) depth, the filter pressure will not occur. Through the pressure filter layer, the raw water will be filtered for discharging the water into an effluent inlet.



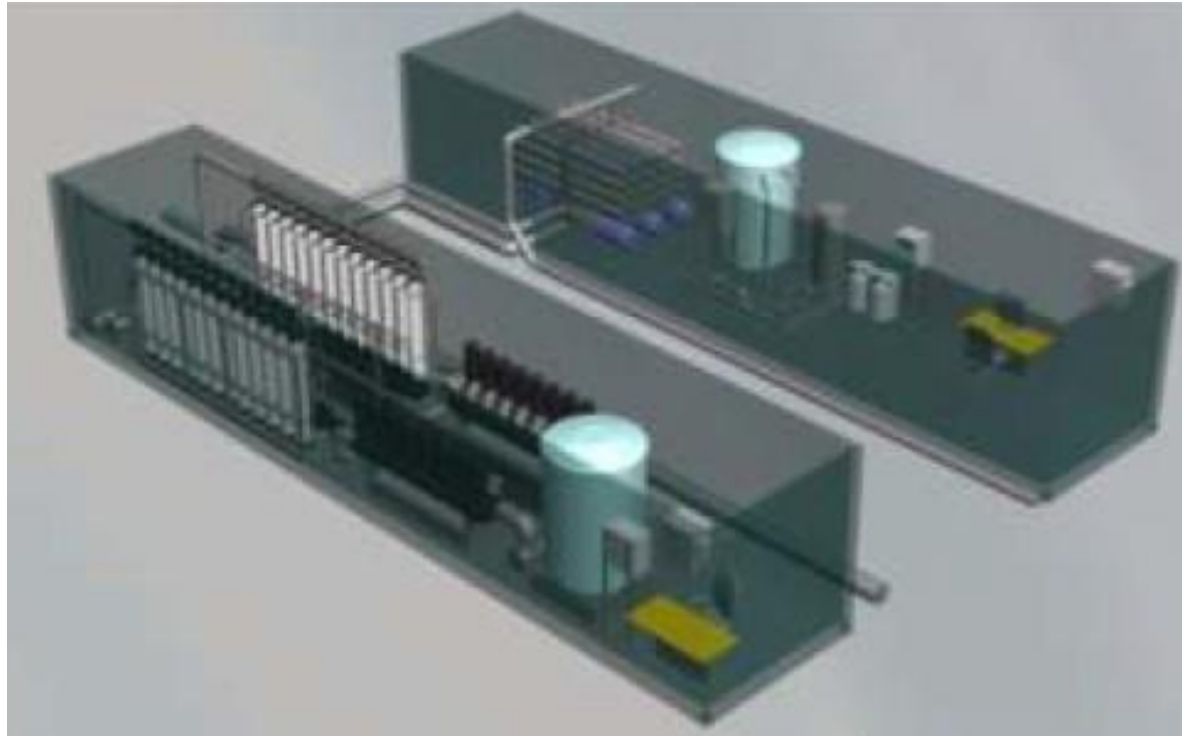
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Containerized Seawater Desalination plant



SEAWATER REVERSE OSMOSIS



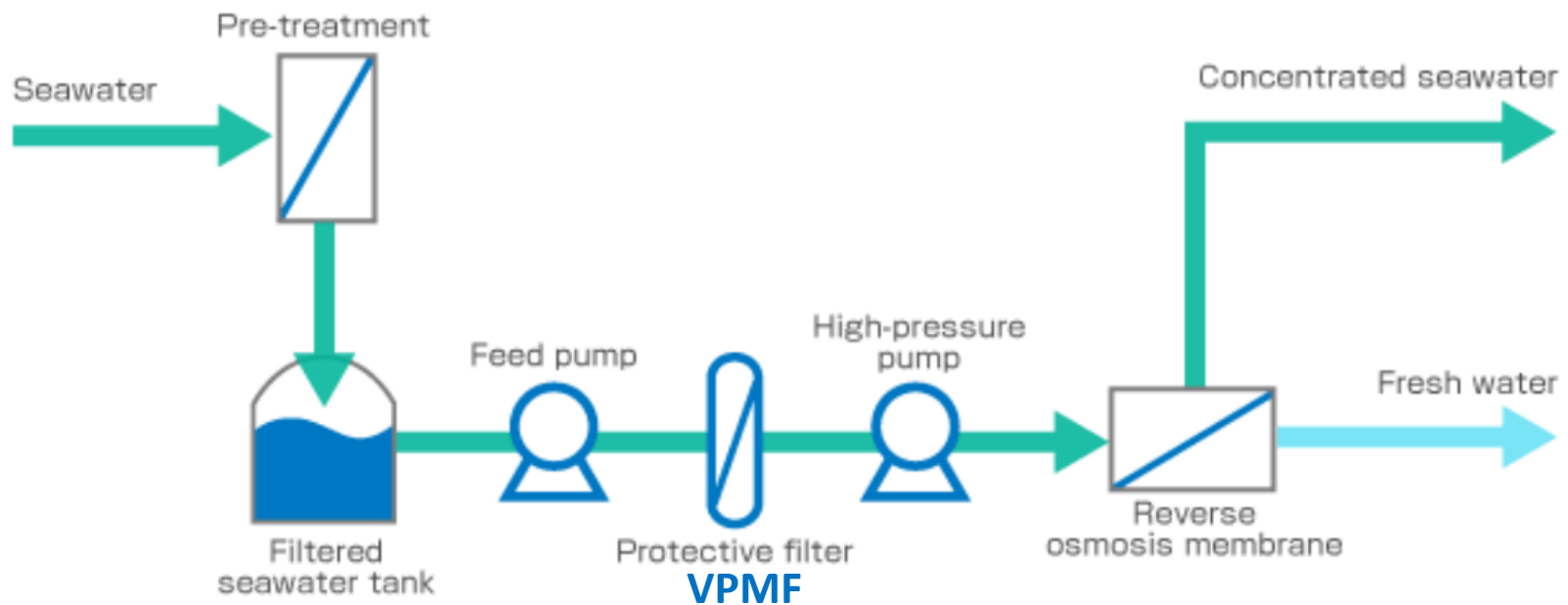
1000-SWRO-VPMF-2-40ft- 1000 m3/day

Desalination plant 1000-4-DB8SW250 with VPMF filters 0.5 μm , and membrane cleaning system in two 40ft container



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SWRO SYSTEM PID



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Detailed Specification of Part List

CLASS	ITEM	Specification	Q'ty	NOTE
VPMF	UQ-TB24 Module	0.2 μ m , PVC , 1260 W X 1470L X 2417 H	12SET	
	PNEUMATIC VALVES	80A JIS 10K ,DOUBLE ACUATING , DC24V , BUTTERFLY , PVC	13EA	
		65A JIS 10K ,DOUBLE ACUATING , DC24V , BUTTERFLY , PVC	60EA	
	FLOWMETER	DIFFERENCIAL PRESSURE TYPE , PVC, 50A , 0~4m ³ /MIN ,AIR	12EA	
		DIFFERENCIAL PRESSURE TYPE , PVC, 50A , 0~0.6m ³ /MIN ,WATER	12EA	
		MAGNETIC FLOW METER , 150A , PTFE	1EA	
	HEADER PIPE	PVC , JIS 10K RF 150A ,100A , 80A , 65A	1LOT	
	FIBER RINSING UNIT	25mL/MIN , 10BAR , 25W , 50L PE	1LOT	
	FEED PUMP	125m ³ /Hr X 25mH , CENTRIFUGAL PUMP , GRP	2EA	IEA IS STANDBY
	BACKWASH PUMP	36m ³ /Hr X 20mH, CENTRIFUGAL PUMP , GRP	2EA	IEA IS STANDBY
	AIR COMPRESSOR	3.7m ³ /min , 8.5BAR , SCREW TYPE	2EA	IEA IS STANDBY
	AIR RECEIVER TANK	2m ³ , STEEL (EPOXY) , 9BAR	2EA	
	CHROLINE INJECTION UNIT	25mL/MIN , 10BAR , 25W , 50L PE	1LOT	



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CLASS	ITEM	Specification	Q'ty	NOTE
R/O	RO SYSTEM	8" X 240" , SWRO , RECOVERY 40% , REMOVAL 99.9%	1LOT	
	HIGH PRESSURE PUMP	125m3/HR X 600mH , CENTRIFUGAL , DUPLEX , ENERGY RCOVERY SYSTEM	1LOT	
	CIP TANK	PE , 5M3 , HEATER , LEVEL SWITCH	1EA	
	CIP PUMP	160m3/HR X 30mH , STS316	2EA	1EA IS STANDBY
	CIP CATRIDGE FILTER	5MICRON , STS316 , 160M3/HR	1EA	
	PIPING	PVC , DUPLEX , 100A , 80A	1LOT	
	MANUAL VALVE	JIS 80K BALL VALVE DUPLEX , JIS 10K BF PVC	1LOT	
	ANTI SCALANTS UNIT	PE , 0.5M3 , 200ml /min , TWO METERING PUMPS	1LOT	IEA IS STANDBY
	SDSI CONTROL UNIT	PE , 0.5M3 , 200ml /min , TWO METERING PUMPS	1LOT	IEA IS STANDBY
	NEUTRALIZATION UNIT	PE , 0.5M3 , 200ml /min , TWO METERING PUMPS	1LOT	IEA IS STANDBY
	REMINERALIZATION UNIT	PE , 0.5M3 , 200ml /min , TWO METERING PUMPS	1LOT	IEA IS STANDBY
	FLOW SENSOR & METER	RO , INLET & OUTLET , CIP TANK	5SET	
	PH SENSOR & METER	RO , INLET & OUTLET , CIP TANK	3SET	
	CONDUCTIVITY METER	RO , INLET & OUTLET	2SET	
	PRESSURE SENSOR & METER	RO , INLET & OUTLET	2SET	
	HEATER	5KW	1LOT	
TEMPERATURE SENSOR & METER	CIP TANK	1SET		

