



EP.RO.S *series 500*

modular seawater desalination plants

up to 500 cubic meters/skid
.....(132'000 GPD) per day

EP.R.O.S *series 500* seawater desalination plants

The seawater desalination plants **EP.R.O.S *series 500***, are manufactured in modular packages on a standard skids. **EP.R.O.S *series 500*** plants are delivered to site fully assembled, tested and ready for commissioning and start up.

EP.R.O.S *series 500* plants are designed in three configurations:

- . Low Salinity: up to 35,000 mg/l TDS (Total Dissolved Solids)..
- . Medium Salinity: up to 40,000 mg/l TDS.
- . High Salinity: up to 45,000 mg/l TDS..



The **EP.R.O.S *series 500 plants*** are offered as a base unit with optional modifications and features.

- ! Micron Filters.
- High Pressure Pump.
- Energy Recovery Turbines.
- Sea Water Reverse Osmosis Membranes & Pressure Vessels.
- Motor Control Center.
- Standard skid.
- Interconnecting Pipes & Valves.
- Interconnecting Cables.
- Instrumentations.

The seawater desalination plants **EP.ROs series 500**, can be supplied with following options:

- . Multimedia Filtration System.
- . Bag filter.
- . Screens.
- . Cleaning in Place System.
- . Product Transfer System.
- . Chemical Dosing System.
- . Pressure Exchange Energy Recovery system ERI .
- . Raw Water Intake Pumps.



EP.ROs series 500 is fit with cartridge filters that provide maximum filtration capacity, economy and longer service than other filters. **EP.ROs series 500** will comprise 5 micron cartridge filters that guarantees supply of filtered water suitable for any reverse osmosis membranes available in the market. **EP.ROs series 500** can work with a wide range of chemicals, high temperature resistance and long life dependability.

EP.ROs series 500 high pressure pump, hydraulic pressure booster and motor are pre assembled and mounted on the Reverse Osmosis RO skid. All high pressure pump skids have been individually designed to exactly match the flow and pressure conditions required by the RO membranes. These high pressure pumps are available for a variety of voltages and for 50 and 60 Hz applications. **EP.ROs series 500** are offered with optional Variable Frequency Drives VFD control to allow for process adjustment and provides additional motor protection and efficiency.





EP.ROs series 500 is fit with Energy Recovery Turbine ERT. The ERT has earned a reputation for reliability and ease of operation.

The ERT generates a pressure boost in the feed stream ranging from 20% to 40% of the total membrane requirement. The ERT is entirely energized by the brine stream. The brine and feed provide all lubrication and cooling. The ERT includes an integral valve for brine pressure regulation. The ERT is a highly efficient, compact device, constructed of high grade duplex alloy with a wide operating range.

EP.ROs series 500 is controlled by a Process Logic Controller PLC. The controller along with the input and output (I/O) modules are mounted in the control cabinet on the RO skid. Each skid is shipped pre-programmed for basic stand-alone configuration.

Digital readouts of flow and conductivity Instrumentation, suction pressure sensor & gauge, pressure sensor & gauge, differential pressure sensor and gauge, HMI Accessories Nema 4 panel mounted, PC Touchscreen or HMI Interface, HMI Accessories Desktop PC for HMI (Not Skid Mounted) are all provided



EP.ROs series 500's Cleaning in Place CIP systems are designed to clean RO membranes in the place. CIP systems are sized to accommodate plants ranging in size from 200 cu m.day up to 1500 cu m.day. Multiple CIP units are installed in parallel to serve higher capacities.

CIP system contains all the necessary equipment and instruments required to perform and monitor the cleaning operation.



EP.ROs series 500' units can be integrated to form larger capacity plants.

EP.ROs series 500 membrane blocks and high pressure pumps and energy recovery systems can be independently integrated to form larger plants



EP.ROs series 500 Performance

(*1)

(*2)

model	Product Capacity	Feed Capacity	Brine Capacity	Vessels x Membranes	Membranes Total No.	Specific Power/ Cu. M	motor Kw
	CMD	CMH	CMH				
EP.ROs 500	500	59.5	32.0	5 x 7	35	3.8	75
EP.ROs 1000	1000	119.0	64.0	10 x 7	70	3.2	149
EP.ROs 1500	1500	178.5	96.0	14 x 7	98	3.1	224

(*3)

model	LxWxH	Wt. (Dry)	Wt. (Wet)	Feed x Brine x Product Connections
	M	Kg	Kg	In
EP.ROs 500	8.3 x 1.02 x 2.5	2500	4050	4 x 3 x 3
EP.ROs 1000	8.3 x 1.83 x 2.5	4750	8250	8 x 6 x 6
EP.ROs 1500	8.3 x 2.60 x 2.5	5560	9880	8 x 6 x 6

(*1) Based on 40% recovery. Performance can be recalculated according to the detailed feed water analysis and environmental conditions.

(*2) Assuming Energy Recovery System ERS and Variable Frequency Drive control are installed.

(*3) RO module+High Pressure Pump+Energy Recovery System are included in the quoted short block. The short block is fit kinto standard 12.0 x 2.5 m skid incorporating chemical systems and micro fine filters. Clean in Place System is separare.

[1] All high pressure pipe works made of duplex stainless steel 2205.

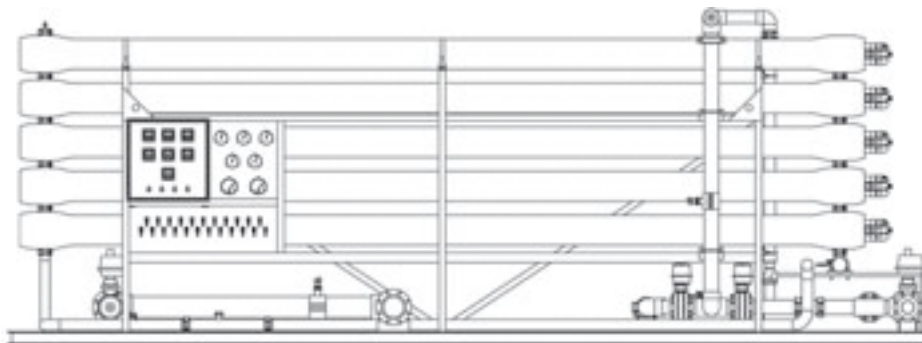
[2] All models are fit with Energy Recovery Turbines ERT.

[3] All pressure vessels are 8 inch diameter and 1200 psi pressure rating.

[5] All membranes are 8 inch diameter high rejection spiral wound thin film composite.

[6] All models are built on standard 12 x 2.5 m skid containing chemical systems and control panel.

[7] All electric power mains are 380-400v/3ph/50hz. Alternative power mains are available.



Other Desalination Plants.....

WEPCO/EPECO.USA is manufacturing **EP.ROWPU**'s, the Reverse Osmosis Water Purification Units, for battle field operations.

In 1990 **EP.ROWPU**s were built by **EPECO.USA** and were widely deployed in desert storm operations (August 2, 1990-Feb 23, 1991). **EP.ROWPU** Gulf War II units were built on a light weight Aluminum-Titanium alloy and heavy duty rough terrain trailers.



EP.ROWPU's dimensions & weight were modified to fit in the C-130 and C-141 air carriers for high transportability and possibility of platform airdrop. Each Gulf War II **EP.ROWPU** unit was capable of producing up to 500 cubic meters per day from seawater sources. All **EP.ROWPU** units can be equipped with NBC (Nuclear, Biological and Chemical) decontaminators which can secure the production of pure water under the most difficult military operations conditions.



EP.ROMARINE water makers-designed for on-ship board, are available in integrated or split formats where power drive is independent from the desalination unit. This will allow for flexible plant room arrangement.

EP.ROMARINE plants capacity range is up to 20 m³/day (standard ocean salinity 35'000 mg/l). Capacity is reduced for higher salinity, however special Red Sea & Gulf packages can serve same capacity at 42'000 & 48'000 mg/l salinity respectively.



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