



ADVANCED WATER TECHNOLOGY
PETER TABOADA
TECNOLOGÍA AVANZADA DEL AGUA



PETSEA RO SW-Y SEAWATER REVERSE OSMOSIS DESALINATOR

The PETSEA RO SW-Y desalination systems have been designed to obtain high quality potable water in a continuing operation 24 hours a day.

The robust desalination systems design has been improved to resist the hardest operating conditions in a marine environment.

MODELS:

- SW-Y 5/6 – 10/12.
- SW-Y 10/18 – 20/34 – 30/52.
- SW-Y 40/50 – 60/80.
- SW-Y 45/55 – 80/90 – 110/120 – 130/150.

There is also the possibility of having bigger and more specialised equipments manufactured according to the client's specifications.



SW- Y 30/52



SW-Y 130/150



PETSEA RO SW-Y SYSTEMS STANDARD FEATURES

FEEDING PUMP (LOW PRESSURE):

- Low pressure pump in stainless steel.
 - Made of AISI 316 Stainless Steel.
 - Compact pump with small sizes and mechanic seal free of maintenance.
 - Size according to DIN 24960
 - Pump connected with totally closed engine, cooled with ventilator.
 - Specifications:
 - Fluid temperature: - 15 °C to + 110 °C
 - Max discharge Pressure: 10 bar.
- It ensures that the high-pressure pump is fed with water under enough pressure, after flowing through the media filter and the micrometric filters.

PRE-FILTRATION:

- Anthracite and quartz sand filter (optional for 5/6 and 10/12 SW-Y models):
 - For removing the biggest particles, of approximately 50 microns, main marine contaminants, and for avoiding a rapid fouling of micrometric filters. An automatic cleaning system is included.
 - Composition: crushed stone, heavy sand, fine sand, anthracite and deferrizator material.
 - The different kind of silex sand filtrate the suspending materials.
 - The final layer of anthracite reduces the content of organic matter.
 - The desferrizador material is a security barrier, not secure the total removal of oxide if it comes from ship's pipeline.
 - Normal flow: 20 m³/m²/h. Peak flow 40 m³/m²/h
 - Vessel in fibreglass reinforced polyester resyn. Inside bed in polypropylene.
 - Automatic washing system. Control valve with four cycles: slow washing, fast washing, clarification and normal service.

Allowed Manual washing system (NOT INCLUDED).

- Special size cartridge filter, BIG BLUE:
 - Cartridge filter does not allow the particles bigger than 5 micron to enter into the membranes.
 - The frame has been designed for the easy substitution of the cartridge.
 - Length: 10"
 - Inlet / outlet: 1"
 - It includes a 5 micron bag filter cartridge (1 micron filters are optionally available). The bag could be washed and reused several times.
 - Stainless Steel support included.

HIGH PRESSURE PUMP:

- It is connected directly to the motor for reducing the whole equipment size and the required maintenance.
- Its head available for an easy inspection and maintenance in 316L stainless steel (optionally available in nickel-aluminium-bronze).
- Triplex pump with CAT ceramic piston
- Triple piston design to give au uniform flow
- Elastic motor-pump coupling.
- Seals lubricated and refrigerated by the pumped liquid with double protection again leaks.
- Aspiration and discharge valve set interchangeable
- The sinks in 316 stainless steel have a high resistance again corrosion
- Wet-end is easily serviced without entering crankcase, requiring less time and effort.
- The maintenance of the valve could be done without remove the piping
- Retainer, joints and packing without specific fitting
- ABB motor
- Specifications:
 - Max. discharge pressure: 150 bar



- Max. Fluid Temperature: 71 °C
In steel with rust preventive paint.

REVERSE OSMOSIS MEMBRANE:

- Spiral wound membrane in polyamide thin film composite, what constitutes the most advanced and current technology.
- Great water purity, with a minimum rejection rate of 98,6%.
- The membrane has been designed for exceptional life and easy cleaning (more than 3 years long-lasting, if the cleaning requirements are followed).

PRESSURE VESSEL:

- Pressure vessel made of epoxy resin mould reinforce with fibreglass. This combination gives the best mechanical conditions.
- Max. Working pressure: 70 kg/cm² (1000 PSI). Test fugue: 105 bar (1.500 PSI).
- Long-lasting easy-to-change assembly.
- Seals made of proved corrosion resistance materials.

INSTRUMENTATION AND PROTECTION

FEATURES:

- Long-lasting high and low pressure glycerine-filled gauges in 316 stainless steel.
- High and low pressure switches in 316L stainless steel. The low pressure switch does not allow the start-up of the machine if the feed water does not have enough pressure. The high-pressure switch does not allow the high-pressure pump to operate with more pressure than the recommended.
- Product and rejection flow gauge are manufactured in shockproof methacrylate.
- Operation time counter. It informs when the service is required according to the system operating hours.
- "On - off" switch with indicator light and thermal protection of the high and low pressure pump motors.

- Electronic salinity sensor for directing automatically the product water out of the product line when it is non-potable, or for directing it to the storage tank when it is potable, by means of a solenoid valve.
- All the electric connexions are watertight.
- Metallic watertight electrical box. The whole electrical installation follows the EC and IMO legislations. The wiring includes numbered nomenclature for a better identification of each wire.
- Control panel pilot light:
 - Potable water: It indicates that the produced water is potable
 - Non potable water: It indicates when the produced water is not potable and it has been turned aside. Controlled by the electronic salinity sensor.
 - Low feeding pressure: It indicates a low pressure in the entrance of the pump. The equipment stops working controlled by the low pressure switch.
 - High feeding pressure: It indicates that the pressure at the entrance of the pump is too high. It is controlled by the high pressure switch.
 - Failure of the motor of the feeding pump: Controlled by the thermal relay.
 - Failure of the motor of the high pressure pump: Controlled by the thermal relay.
 - Switch Start up/ Stop of the feeding pump
 - Switch Start up/ Stop of the high pressure pump

FRAME:

- The polished 316 stainless steel frame has been manufactured for a long-lasting life and for a great resistance to corrosion in marine environments.
- Components disposition for an easy maintenance and working space with outer opening.



ADVANCED WATER TECHNOLOGY
PETER TABOADA
TECNOLOGÍA AVANZADA DEL AGUA



CONNECTIONS:

- Seawater inlets and outlets with metal connections for avoiding break due to vibration.
- Outlets of potable nopotable water in brass.
- All the high pressure fittings in 316 stainless steel for a better corrosion resistance. Bent tubes for avoiding counter-pressures and corrosion.
- The tubes in contact with the potable water are food graded.
- The tubes in contact with sea water and rejected water in stainless steel.

TESTING:

The equipment is tested in PETER TABOADA, S. L. installations in Vigo before being sent. The tests include: Electric and electronic operation, hydraulic operation, performance with different temperatures and different feed water qualities, operation under extreme conditions applying the maximum pressures, product water quality, security systems, etc.

EXPANDABLE SYSTEMS:

All the PETSEA RO systems are expandable with the only need of installing extra membranes. The systems are prepared in the factory with bigger pumps, motors and tubes to easily expand the systems. This unique characteristic makes the PETSEA RO systems the most versatile ones in the current market.

QUALITY:

PETSEA RO SW design and manufacture are made following the Control Quality Manual implanted in PETER TABOADA S.L. According to our principles of continuous quality improvement, we secure a severe control in all process of design, manufacture, technical services and maintenance.

GUARANTEE

PETER TABOADA S.L. guarantees to the client that all the plants are free from faulty materials or manufacture. The period of guarantee includes 1 year from the start up or 18 months from the delivery of the plant.



PETSEA RO SW-Y SPECIFICATIONS

Common specifications:

MINIMUM REJECTION RATE: 98,6%
SEAWATER PRESSURE: Minimum 1 kg/cm ²
MAXIMUM OPERATING PRESSURE: 70 kg/cm ²
MAXIMUM INLET WATER PRESSURE: 6 kg/cm ²
SEAWATER TEMPERATURE: Minimum 2°C – Maximum 40°C
MAXIMUM SEAWATER SALINITY: 40000 PPM TDS
MAXIMUM FILTRATION: Maximum 5 micron particles (optionally 1 micron).

Specifications according to models:

MODELS	PRODUCTIONS (Based on 38000 PPM, 15-25°C, 65 bar) (Lts)	MAXIMUM POWER	CONNECTIONS	NOISE LEVEL	APPROX. DRY WEIGHT
5/6 10/12	500/600- 1000/1200 respectively	1.8 kW approx.	Feed 3/4" Rejection 1/2" Potable and non-potable water production 1/4"	78 db(A)	48 kg approx.
10/18 20/34 30/52	1000/1800- 2000/3400- 3000/5200 respectively	2.2 kW approx.	Feed 3/4" Rejection 1/2" Potable and non-potable water production 1/4"	80 db(A)	55 kg approx.
40/50 60/80	4000/5000 6000/8000 respectively	3.0 kW approx.	Feed 3/4" Rejection 1/2" Potable and non-potable water production 1/4"	85 db(A)	110 kg approx.
45/55 80/90 110/120 130/150	4500/5500- 8000/9000- 11000/12000- 13000/15000 respectively	5.5 kW approx.	Feed 1" Rejection 1/2" Potable and non-potable water production 1/2"	85 db(A)	125 kg approx.
180/200	18000/20000	7.5 kW approx.	Feed 1" Rejection 1/2" Potable and non-potable water production 1/2"	85 db(A)	150 kg approx.