

DESALINATION UNITS

SW SERIES



SW250

SW Seawater or Brackish Water Desalination Systems Series with Reverse Osmosis consists of advanced water treatment units for industrial and professional applications, where the need for high quality requires robustness, low energy footprint, high performance and long-lasting use. SW Crystal Blue desalination systems constitute the ideal solution to confront the low quality of water and the water shortages on islands, municipalities, industries, hotels, hospitals, and etc.

During the desalination process, seawater enters the system at high pressure and passes through membranes, separating the inlet water in two fractions, the permeate and the concentrate. The concentrate concludes the 99.8% of the permeate salts. The permeate produced, is discharged of salinity, suitable for water supply, irrigation and most industrial uses.

The SW series combined with the pre-treatment system in a common frame with interconnected functions, can be a complete and affordable solution to produce clean water! The architecture of the unit requires minimal hydraulic lines, less space and easy access for maintenance.

In conclusion, this is a high quality system with no leaks and damage, maximum space utilization and easy maintenance. All parts incorporated, are characterized by high quality, as they come from world-wide firms with decades of experience.

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- * The unit is delivered in a frame made of AISI 316 rectangular stainless steel, which is resistant to seawater, with TIG welding for maximum durability and anti-corrosion protection.
- * The **low pressure pipe** is made of 16 bar PVC welded pipe and is enriched in brass. All low pressure gauges have a range of 0-6 bar.
- * The **high pressure pipe** is made for adapters and pipes of AISI 316, whereas some parts are made of PP and brass which are sealed with stainless steel.
- * The concept of the architecture is to allow dismantling for future **maintenance** or troubleshooting.
- * All high pressure **manometers** are glycerin type, made of stainless steel.
- * The **control panel** is responsible for all actions that take place in the system. It is made of ABS IP 55 (at least), protects and controls each individual device. The PLC device is LOGO! Siemens and checks all the available system signals. A conductivity controller could also be provided, which is integrated with the results displayed directly on the screen (NATIVE), while ETHERNET connection expands control limits to a global scale! The same screen shows all system functions, such as membrane rinsing, storage tank completeness, thermal protection, intermittent voltage, volume, etc.
- * **High Pressure Pump:** depending on the contextually design of the system (water quality, operating pressure, recovery etc.) the following formulas are used for maximum efficiency:
 - rotary blade pumps
 - multistage centrifugal pumps
 - Piston pumps.
- * All parts of the desalination system are **non-toxic**, suitable for **drinking water** and **long-term use**.

M _{odel}	C _{apacity}	W _{ater} Quality Range	R _{ecovery}	C _{onnections} Inlet—Permeate— Concentrate	M _{embranes}	D _{imensions}	P _{ower}	W _{eight}
Units	m ³ /day	TDS	%	NPT (in)	in	m	kW	Kg
SW006	6	10.000-40.000	30-40	F1"-F1/2"-F1/2"	4x2,5"	2,5x0,8x1,8	3,8	120
SW015	15	10.000-40.000	30-40	M1"-F1/2"-1"	4x4"	0,8x0,5x1,80	7,5	120
SW030	30	10.000-40.000	30-40	F1"-F1"-F1"	9x4"	3,5x1,5x1,8	11	600
SW080	80	10.000-40.000	30-40	F1,5"-F1,5"-F1,5"	5x8"	5,5x1,5x1,8	16,5	750
SW240	240	10.000-40.000	30-40	F 2,5"-F2"-F2"	3x8"	7x1,5x1,80	43	1.800

* Intermediate and larger capacity models are built upon demand.

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Pretreatment varies depending on the water quality and the space requirements. First of all, it depends on the type of the pump, which is the main part that can vary contextual on the rust protection, pressure or flow. Another variation may be the type of membrane, which is responsible for discarding and hence water quality. An INVERTER (VFD) can also be applied in order to achieve smooth flow, constant pressure, low power consumption and low sound levels, when needed. In cases where several parameters of water have to be monitored, various instruments can be used.

Filtering media:

- ◇ 10 µm Polypropylene cartridges.
- ◇ 10 µm Active carbon cartridges.
- ◇ 1µm Polypropylene cartridges.



The fact that for high water supplies, seawater or brackish water passes through a multi-cartridge filter before entering the high pressure pump is noteworthy.

Pressure boost :

Rotary blade pumps are energy efficient but need more maintenance. Stainless steel pumps are used exclusively by EU electric motors. Multistage pumps are commonly used on larger scale systems due to their long service life and their ability to be adapted to variations in flow. All multi-stage pumps have at least their moving parts made of stainless steel.

Membranes:

Depending on the characteristics of the inlet water, after the appropriate pretreatment, the role of the membrane is to maintain the quality of clean water in acceptable levels. New technology membranes with excellent permeability, high on-waste disposal and low energy consumption ensure a high efficiency system, capable of supplying the highest possible amount of water, while the rejection ranges at the lowest consumption.



Control :

Automation is the best part of SW desalination systems series, since deep knowledge and broad technological expertise have been applied to the core of PLC's programmable controller. All the necessary functions for a robust, durable system are present in the controller, as well as user-friendly functions such as voltage monitoring, volume and conductivity measurement. Finally, Ethernet connectivity extends the control limits.

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Common features for all models:

- ◇ PLC LOGO! Siemens
- ◇ 24Vdc Secondary Circuit
- ◇ Stainless Steel Frame
- ◇ Inlet Pressure: 1-4 bar
- ◇ Ambient Temperature: 5-45°C
- ◇ Water Temperature: 16-35°C
- ◇ Native Conductivity Meter
- ◇ Native Electronic Meters Characteristics (V,A,W)

* **Native** means that the measurement is performed on the PLC without an external device, leading to an advanced scheduling of the system scenario. It is therefore possible to get a pre-alarm directly to a much lower point, before it reaches the point where the system stops the unit. In addition, monitoring the pump volume is able to escape from the classic thermal protection, with new scenarios, creating an extremely safe working environment for the pump.



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