

# REVERSE OSMOSIS UNITS

TW AND BW SERIES



BW150

**TW** and **BW** reverse osmosis units series are sophisticated systems for industrial and professional applications where the necessity for quality demands hi-end, low footprint, robust systems designed for long term usage.

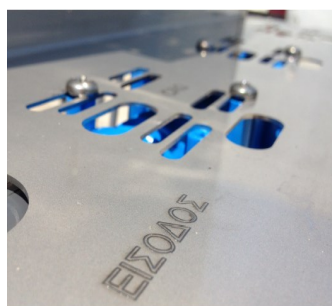
**TW** and **BW** series can be a total solution with all pre-filtration systems combined in a common frame and interconnected functions able to deliver the best water treatment in the lower possible cost. The TW series 'architecture' presents systems with minimum **plumping lines**, less empty **spaces** and full access for **maintenance**.

Thus, creating a unit with maximum safety for leaks or breaks, maximum space efficiency 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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**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.



### 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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- ◇ **Frame** is made by AISI 304 rectangular stainless steel, TIG welded for maximum durability and anticorrosion protection.
- ◇ The **low pressure pipe** is made of 16 bar glued PVC pipe and some parts of brass as well. The pressure gauges are 0-6 bar range.
- ◇ The **high pressure pipe** work is made for AISI 304 fittings and pipes, while some parts are made by 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.
- ◇ **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 monitors 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 are **non-toxic**, suitable for **potable** water and for long term use.

In the tableau below, the models of reverse osmosis systems **BW** are presented and refer to **high capacity water of brackish well water**, characterized by conductivity up to **2500 TDS**. BW systems are addressed to high industrial requirements (consumption >25m<sup>3</sup>/day).

M <sub>odel</sub>	C <sub>apacity</sub>	W <sub>ater Quality Range</sub>	R <sub>ecovery</sub>	C <sub>onnections</sub> Inlet-Permeate-Concentrate	M <sub>embranes</sub>	D <sub>imensions</sub>	P <sub>ower</sub>	W <sub>eight</sub>
Μονάδες	m <sup>3</sup> /day	TDS	%	NPT (in)	in	m	kW	Kg
<b>BW050</b>	50	2500 - 8000	50-75	M1"-F1"-F1"	8x4"	3,5x1x1,80	4,0	350
<b>BW100</b>	100	2500 - 8000	50-75	F1,5"-F1,5"-F1,5"	6x8"	4x1,20x1,80	5,55	500
<b>BW150</b>	150	2500 - 8000	50-75	M1,5"-F1,5"-F1,5"	6x8"	3,5x1x1,80	5,9	550

\* Intermediate and larger capacity models are built upon demand.

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In the tableau below, the models of reverse osmosis systems **TW** are presented and refer to lower **capacity municipal water**, characterized by conductivity lower than **2500 TDS**. BW systems are addressed to low industrial requirements (consumption >25m<sup>3</sup>/day).

M <sub>odel</sub>	C <sub>apacity</sub>	W <sub>ater quality range</sub>	R <sub>ecovery</sub>	C <sub>onnections</sub> Inlet-Permeate-Concentrate	M <sub>embranes</sub>	D <sub>imensions</sub>	P <sub>ower</sub>	W <sub>eight</sub>
Units	m <sup>3</sup> /day	TDS	%	NPT (in)	4"	cm	kW	Kg
<b>TW005</b>	5	500-2500	55-75	F1"-F1/2"-F1/2"	1x	45x60x180	0.9	45
<b>TW010</b>	10	500-2500	55-75	M1"-F1"-F3/4"	2x	45x70x180	0.6	58
<b>TW015</b>	15	500-2500	55-75	F1"-F3/4"-F3/4"	3x	45x90x180	0.5	75
<b>TW020</b>	20	500-2500	55-75	F1"-F3/4"-F3/4"	4x	3,5x1,0x1,80	2,3	250

\* Intermediate and larger capacity models are built upon demand.

### Common characteristics for all models:

- ◇ LOGO Siemens control
- ◇ 24Vdc secondary circuit
- ◇ Stainless Steel Frame
- ◇ Native conductivity measurement
- ◇ Native powerline management (V,A,W)
- ◇ Room Temp: 5-45 °C
- ◇ Water Temp: 16-35 °C
- ◇ Inlet pressure: 1-4bar

\***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.



TW005

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