



Dessol

Desalinated water thanks to the sun

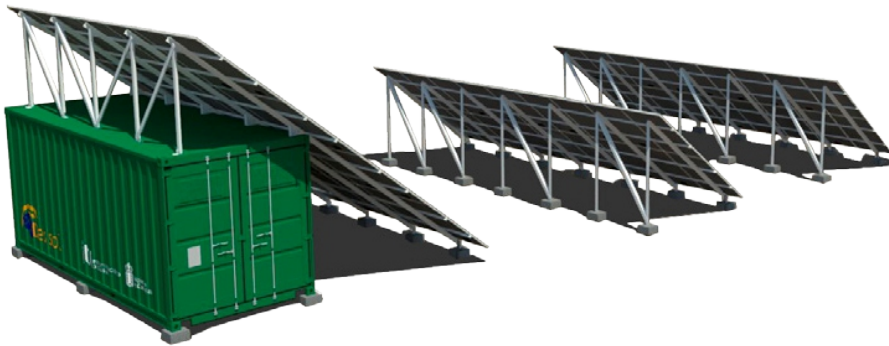


Autonomous desalination module

The scarcity of fresh water has favoured an exponential development of desalination at an international level. Within the desalination processes, reverse osmosis has had greater progress due to its modularity and the significant reduction of specific energy consumption compared to other technologies. This technology demands electricity, which is associated with the consumption of traditional sources of energy with their consequent environmental impacts. DESSOL® proposes an autonomous solution of water desalination thanks to the exclusive use of the sun.



The advantages of DESSOL®



DESSOL® is a fully tested device, already installed in locations under real operation conditions. It has an international patent.



In order to put DESSOL® into operation, it is necessary to collect water to be treated (brackish or sea water) and a discharge point for the brine, which can, in turn, have other uses.

Due to its modularity it admits expansions, being its original concept to have its components located inside a building or into a container. It is not required to have connection to the local power grid.



Reverse osmosis has optimized energy consumption - the minimum when compared to other desalination technologies.



DESSOL® does not need a big investment for its installation, considering that it produces its own energy. In addition, the maintenance it entails is minimal.



Tons of CO2 emissions per year are avoided with this concept of solar energy use.



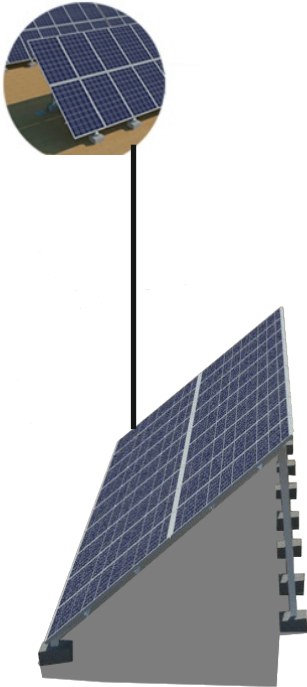
The technology DESSOL® is a robust solution for the supply of drinking water, using photovoltaic solar energy in isolated environments with availability of sea water or brackish water. Many regions of the planet are configured as suitable for the installation of DESSOL® autonomous systems.

The technology **operates isolated from the electrical network**; just needs a source of salt water (brackish or sea) with sufficient flow to meet the demands. The plant adapts to the radiation conditions of the place, the water salinity as well as to the client's specific needs and required water production.



DESSOL® Modularity

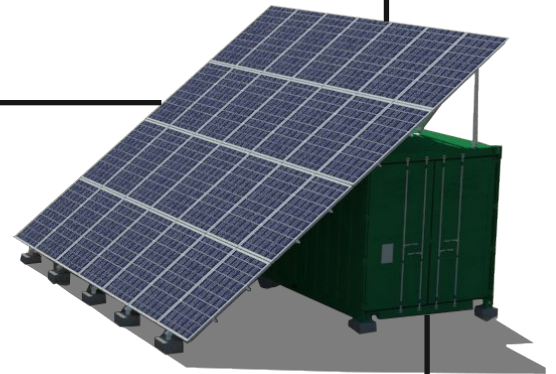
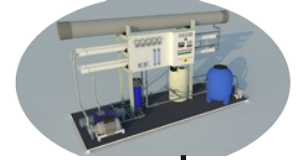
Optimized photovoltaic panels structure depending on the model. The panels are fully adaptable to the installation site. The designed models range from 24 to 176 panels.



Battery bank. Optimizes the operation of the desalination plant, regardless of the availability of instantaneous solar radiation. The size of the energy storage is obtained according to a required minimum daily operation hours. This capacity can vary between 420Ah and 5000Ah.



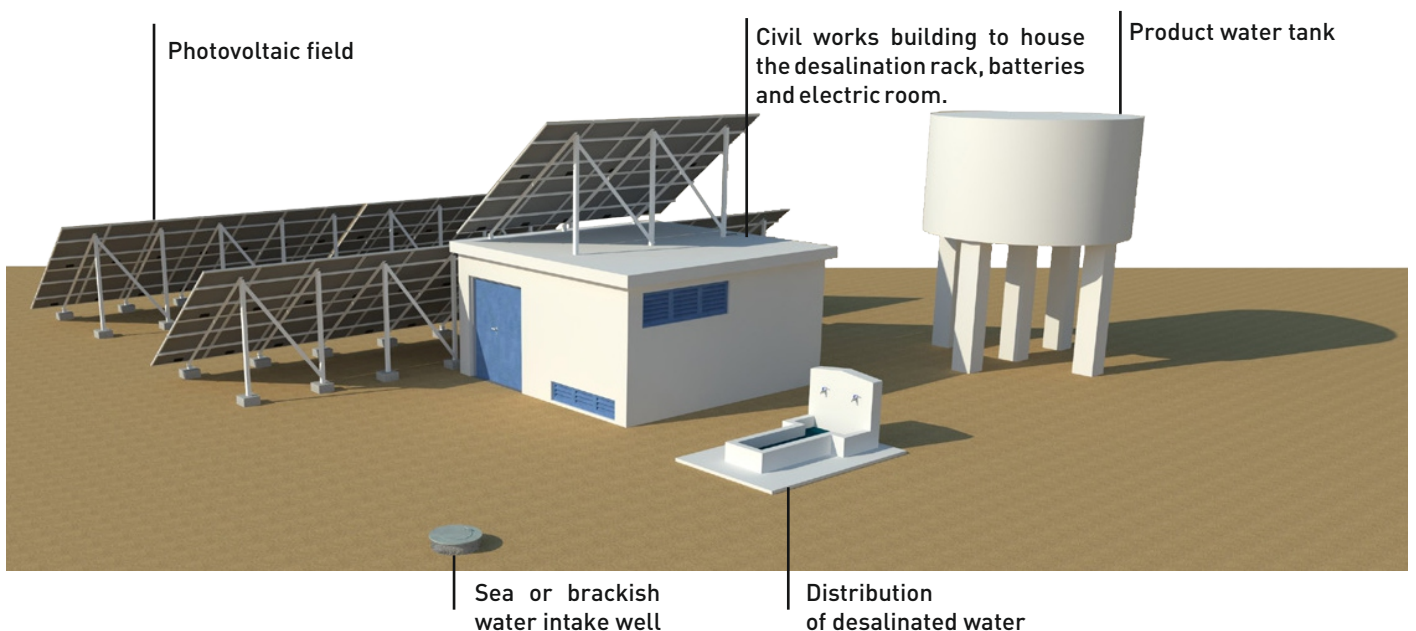
Reverse osmosis rack. Dimensioned according to the required water production, ranged from 500 l/h to 4000 l/h of water produced.



Container. The DESSOL® in container uses a standard model of 20'. Depending on the size of the plant, one or two containers are used to house all the necessary equipment.



There is also the possibility of locating the DESSOL® in a building specifically built for the purpose.



Technical specifications of DESSOL®

DESSOL® allows adapting to the conditions and needs of the place. That is why there are a series of standard modulations dimensioned according to the type and salinity (g/l) of the water to be treated (brackish (BW) or sea (SW)) and the real demand of water required (l/h).

DESSOL system (l/h)	PV Modules	Regulador	Inverter	Batteries	Energy consumption (Wh)	Type of installation
	nº	nº	nº	(Ah)		
BW5 500	24	2	1	420	1,838	Single phase
BW5 1000	32	2	1	900	2,682	Single phase
BW5 2000	72	3	3	2,000	5,640	Three phase
BW5 4000	80	4	3	2,500	6,659	Three phase
BW15 500	28	2	1	1,000	2,134	Single phase
BW15 1000	48	3	1	1,000	3,863	Single phase
BW15 2000	72	3	3	2,000	5,670	Three phase
BW15 4000	100	4	3	3,750	8,169	Three phase
SW38 500	36	3	1	1,000	2,818	Single phase
SW38 1000	60	3	3	1,750	4,855	Three phase
SW38 2000	76	3	3	2,250	6,030	Three phase
SW38 4000	176	9	3	5,000	13,156	Three phase

The data shown in the above table corresponds to a minimum of 8 hours of operation per day and an average electrical efficiency of the components of more than 75%.

DESSOL® technology is a patent from INSTITUTO TECNOLÓGICO DE CANARIAS, SA (www.itccanarias.org). It is the only patented development on an international scale that uses photovoltaic solar energy and reverse osmosis in an integrated and optimized way to desalinate water by using batteries.

References



Tasekra
(Essaouira - Morocco)
DESSOL BW15 - 1000 l/h



Tangarfa
(Tiznit - Morocco)
DESSOL BW15 - 1000 l/h



Azla
(Essaouira - Morocco)
DESSOL BW15 - 1000 l/h



Amellou
(Tiznit - Morocco)
DESSOL BW15 - 1000 l/h



Ksar Ghilène
(Douz - Tunisia)
DESSOL BW15 - 2000 l/h



Pozo Izquierdo
(Las Palmas - Spain)
DESSOL SW38 - 1000 l/h