



**Solution for the desalination
and purification of brackish water,
well water and seawater.**

 **watertech**

www.water-tech.be

WaterTech sprl
Rue de la Cale Sèche, 34
4684 Haccourt - Belgique



Water treatment with membrane technology

Reverse osmosis membranes allow the retention of dissolved or suspended substances in water (eg ionized minerals, bacteria, organic matter and other undissolved substances). That's why we talk about desalination. In terms of elimination, we are talking about global salinity. Focused primarily on reverse osmosis technology, Watertech's engineering team strives to optimize the operating conditions of its facilities. Two directions are privileged:

- Pretreatment of water to limit membrane clogging
- Reducing energy costs to reduce the cost of desalination and improve the environmental balance

We offer you the following membrane technologies:

- Reverse osmosis
- Nanofiltration
- Ultrafiltration
- Microfiltration

Type of membrane according to the case		
membrane type	Salinity to be treated	Operating pressure
Nanofiltration	0 to 3g/l	4 to 10 bar
Reverse osmosis / brackish water	1 to 10 g/l	10 to 40 bar
Reverse osmosis / seawater	> 10 g/l	40 to 80 bar

Industrial, agricultural and marine applications

Whether for your process water needs, irrigation, the treatment of your wastewater, ... Watertech can meet your needs for:

- production of ultra pure water
- purification and concentration of solutions (example: juices and dairies)
- treatment of evaporation condensates
- boiler water production
- desalination of brackish water, well water, seawater for irrigation and other applications
- reuse and recycling of waste water to process, wash or make-up water
- removal of pesticides and micropollutants from surface water or groundwater

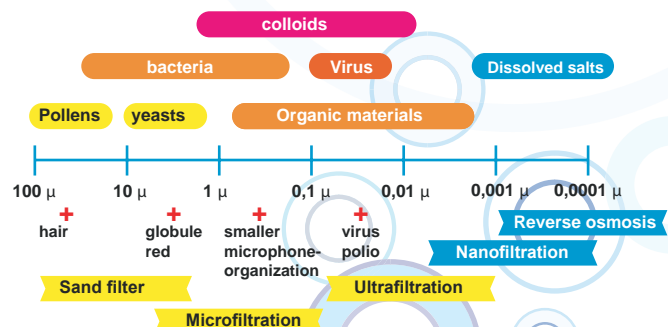
Applications in the tourism sector and small communities

We master a wide range of applications from water purification to water reuse:

- desalination of brackish water seawater in potabilisation
- softening of weakly mineralized waters
- elimination of sulphates and metals
- reprocessing of wastewater

The applications listed above require quality of specific water that can be obtained by the membrane technique. Compared to other methods des, the membranes offer the following advantages:

- less chemical reagents
- small footprint
- reduced maintenance
- reduced operational cost
- constant quality of water





Brackish waters and wells

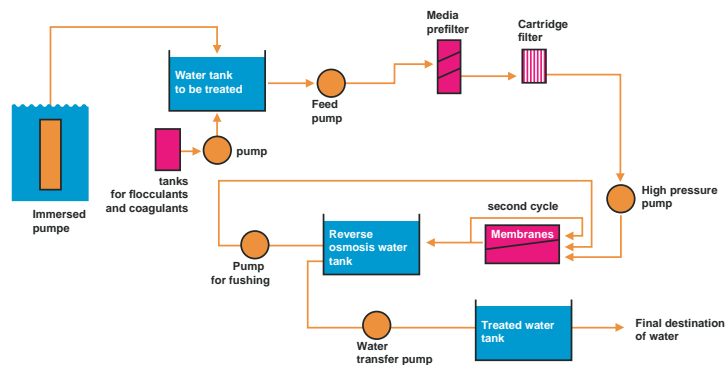
The solution has been specially developed for desalination of brackish water and wells. This team As a rule, it rejects more than 99% of the salts contained in the water to be treated. The volume of treated water may vary from 1000 liters to 2500 m³ / day for waters with a salinity level (TDS) between 1000 and 7000 ppm.

- High pressure and corrosion resistant piping (316 L stainless steel)
- Vertical centrifugal pump (single, double, triple) with frequency converter (VFD)
- High-resistance cartridge pre-filter
- High quality instrumentation and technology for long life
- Pre-filtration: cartridge filter with or without auto-rinse
- Pre-treatment: automatic anti-scaling dosing system
- Skid construction (316 L stainless steel)
- High quality reverse osmosis membranes adapted to water quality
- Support for ice-resistant fiber diaphragms up to 600 psi (40 bar)
- Hand valves, manometers, sampling valves
- Conductivity measuring equipment, pH reading - Alarms
- Short rinsing system to oxygenate membranes temporarily "out of production"
- Membrane Cleaning System (CIP - Cleaning Industrial Process)
- Control cabinet

Brackish waters

- Pre filter for 5 to 10 μ cartridge filters for small particles
- Centrifugal pump brand
- Glycerine pressure gauges
- RO membranes for salt removal
- Important membrane surface
- Fiberglass reinforced polyester membrane supports resistant to 400 PSI or 28 bar
- Regulating valves, for
 - pump flow regulation
 - recycling flow regulation
 - flow control of the concentrate
- Rotameter-type flowmeters, for
 - reading of permeate flow
 - read the flow of concentrate
 - reading of the recycling flow
- Mesure de conductivité digitale
 - conductivity reading at the input RO
 - conductivity reading of the filtrate
- Alarm when exceeding the standard imposed by the customer
- Sample tap at the entrance of the installation
- PVC low pressure piping
- High pressure INOX piping
- Hand valves, pressure gauges, sampling valves
- The entire installation is pre-mounted on stainless steel frame
- Rinsing system with osmosis water at the time of the out of production
- Short rinsing system to oxygenate membranes and reduce the risk of clogging from bacteria

Example of installing a unit well water treatment.



Design of a nanofiltration and reverse osmosis facility

The main parameters that allow us to size your installation are:

- The quality and salinity of the raw water (mineral, organic, inert, microbiological, ph composition)
- The conversion rate (depends on the analysis of your water essentially)
- The temperature of the inlet water
- The required water quality
- The volume of water to be treated and the seasonal variability
- The destination of the treated water (process, potabilisation, irrigation, ...)

Technical specifications (non-limiting examples)

Model n°	permeate * liters/h	m ³ /d	Pressure min. at the start (Bar)	Maximum TDS	Membrane amount	weight at the delivery (kg)**
Unités de désalement d'eaux saumâtres						
HE-BW1-K	1000	24	2 Bar - 30 psi	7000 ppm	4	230
HE-BW2-K	2000	48	2 Bar - 30 psi	7000 ppm	5	360
HE-BW4-K	4000	96	2 Bar - 30 psi	7000 ppm	6	465
HE-BW6-K	6000	144	2 Bar - 30 psi	7000 ppm	8	650
HE-BW10-K	000	240	2 10 Bar - 30 psi	7000 ppm	10	710
HE-BW25-K	000	600	2 25 Bar - 30 psi	7000 ppm	12	1650
Unités de désalement d'eau de mer						
HE-SWERS1.0-K	1000	24	2 Bar - 30 psi	45.000 ppm	2	varies according to the configuration chosen the configuration
HE-SWERS5.0-K	5000	120	2 Bar - 30 psi	45.000 ppm	8	
HE-SWERS10.0-K	000	240	2 10 Bar - 30 psi	45.000 ppm	16	
HE-SWERS14.1-K	100	338	2 14 Bar - 30 psi	45.000 ppm	24	
HE-SWERS18.0-K	916	430	2 17 Bar - 30 psi	45.000 ppm	28	

(*) the permeate is the osmosis water leaving the reverse osmosis unit

(**) this weight is approximate and varies depending on the added options and the "container plug and play" formula

All of our equipment is provided with an electric control panel, a French / English user manual, a maintenance guide and a guide.

antiscalant dosage.

Creation and manufacture to CE standards.

Complete solutions adapted to your needs ...

Belgian independent company, Watertech provides tailor-made or standard solutions in packaging and water treatment. The main applications are the softening, the desalination of brackish water and seawater, process water treatment and any recycling water treatment.

Watertech also offers solutions that allow the reuse of water for industrial and urban use. It is therefore a key element of water resource management and the creation of new sources of availability.

- an experienced team, multicultural and close to the field
- a comprehensive study to have a vision and a global approach to your needs
- engineering and the realization of customized projects
- design, manufacture and adaptation of your reverse osmosis equipment
- pretreatment (eg pH modification, media filtration, coagulation, flocculation)
- post-treatment (eg UV, ozone, chlorine, ...)
- innovations in energy.

Our goal, to guarantee you the solution adapted to your needs and that in a defined budget.



Potabilization unit for seawater

Main applications

WATERTECH potabilization unit, for the supply of drinking water to populations and industries, through sand filtration and desalination by reverse osmosis membranes.

Raw water: Seawater with TDS: 30.000 - 40.000 PPM

Main Features

Prefabricated unit, assembled and tested at the factory, to allow its installation and immediate start-up without the need for civil works.

Sand filtration for the removal of suspended solids larger than 30 micron. Filtration on Reverse Osmosis membranes for seawater, for the removal of dissolved solids: mineral salts, heavy metals, dissolved organic matter, pesticides, radioactive elements, etc.

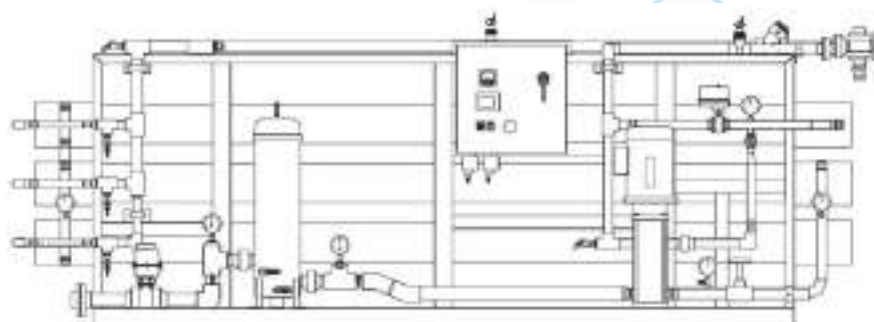
Physico-chemical pretreatment and prior automation avoiding colloidal particles, precipitation of salts and / or the development of biological films, then feels clogging and damaging the membranes. Minimum installation space and modular configuration possible for increased future needs. System totally automated

Technical specifications

Taille des contenants	Conteneur standard			Conteneur isotherme	
	10ft	20ft	40ft	20ft	40ft
External					
Longueur (m)	2.9	6	12.2	6	12.2
Largeur (m)	2.4	2.4	2.4	2.4	2.4
Hauteur (m)	2.5	2.5	2.5	2.5	2.5
Interne					
Longueur (m)	2.8	5.8	12	5.5	11.5
Largeur (m)	2.3	2.3	2.2	2.2	2.2
Hauteur (m)	2.3	2.4	2.4	2.2	2.5
Cylindrée (m³)	16	33	67	28	67
Poids à vide (kg)	1450	2170	3310	2950	4250
Poids brut Max (tonnes)	20	24	30	30	34
Accès	1 double porte				
Pour plus d'informations, veuillez nous consulter pour notre « fiche technique produit »					

* The systems are defined for a maximum dissolved salt content of 1000ppm, a temperature of 15 ° C and a maximum fouling index of 3. Under these conditions the units reach the initial permeate flow after 3 years.

The conversion rate depends on the quality of the raw water and the flow rate.



Reverse Osmosis Water Treatment System