# REVERSE OSMOSIS

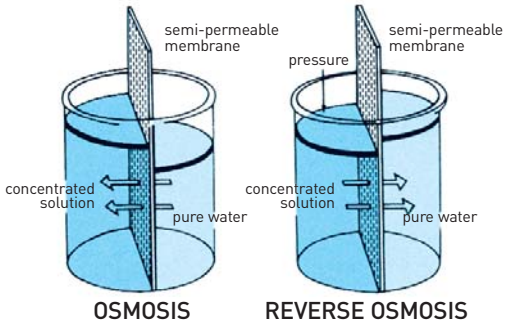
Culligan®

## The answer to your needs for everyday and industrial water

CULLIGAN: WORLD LEADER IN THE WATER TREATMENT

# REVERSE OSMOSIS

## Daily Water

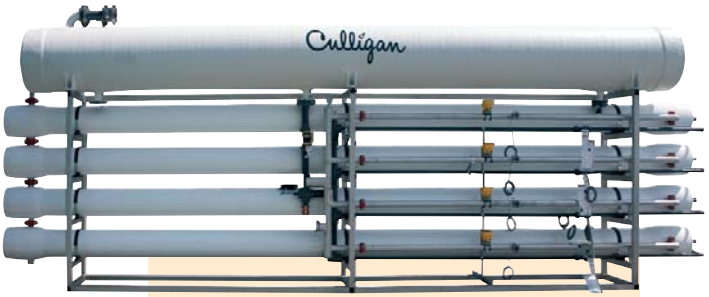



This technology makes use of the ability of certain **semi-permeable membranes** to separate water from the substances dissolved in it.
By applying a certain pressure, the water is forced through the membrane: **the pure water (permeate) will be separated from the water containing the salts (reject)**.
The osmotic membrane, which reaches the highest practicable level of filtration, acts as a barrier to salts and inorganic matter, and also to organic substances with molecular weight higher than 100: it therefore provides an excellent defense against micro-pollutants, pesticides, pyrogenics, viruses and bacteria that may also be found in the water.
**Reverse Osmosis** is a physical type of procedure that does not require the use of any chemical regenerants. Reverse Osmosis technology has been rapidly winning acclaim, and its use has grown quickly owing to its versatility, its excellent performance and its simple application. In a period of a few years the types of membranes available have increased. They have been designed for increasingly specific applications.
Culligan was among the first companies worldwide to use Reverse Osmosis for a wide range of products.
In the following pages we will present some of the more important ones, dividing them by area of application. The list is not exhaustive: in fact a feature of the Reverse Osmosis technology is its extreme flexibility, which makes it possible to solve a problem using the standard products available.

The first, essential use of water is for drinking. Water is used as a beverage, but there is no food in which water is absent, either as an ingredient or as a preparation liquid. There is no beverage or liquor in which water is not the fundamental ingredient.
Reverse Osmosis plays a role in the drinking water sector, and our indicators suggest that this trend is likely to become stronger in the future.
In this brochure you can see a few Culligan plants for the conditioning of brackish or sea water; single-user systems or larger plants to desalinate water for coastal communities, villages and entire cities.
Culligan also supplies container plants, excellent for solving temporary-needs problems or emergency situations.

## SW

Industrial desalinators, designed to offer safe operation, high performance and easy maintenance.
Manufacturing materials, especially the ones in contact with water, are corrosion resistant (AISI 316 Stainles Steel, PVC or Polyethylene) and food-graded.
These units are suitable to treat water with salinity up to 45000 ppm.




**SW** Series equipment, for the desalination of sea water

# Water for work

There are few industrial activities that can do without a specific type of treated water. From boiler water, which must meet precise chemico-physical standards, to process water, which must meet precise characteristics required by the production process.
In this sector too the Reverse Osmosis technology has assumed a role of pre-eminence, owing to its flexibility, economy, and the simplicity of its use.

## MFP

An "evergreen" well-known for its reliability and robustness. It is available in the basic version MFP3 Series with electro-mechanic control panel, and in the new MFP4 Series, featuring an electronic control panel, with conductivity meters and flow meters. All functions are displayed on an easy to read display.

**MFP3, MFP4** and **R.O.²** Series are also available in the Medical Version (Medical Device No. 0373)

## IW E – IW L

Industrial desalinators, designed to provide safe operation with high performance and easy maintenance.
They are manufactured from materials that are corrosion-resistant, food grade material (AISI 316 Stainless Steel, PVC or Polyethylene). These units are suitable to treat water with a low salinity up to 3000 ppm. Initial purchase price and ongoing maintenance costs are competitive, thanks to low-pressure membranes. The versatility and utilisation of standard components ensures the units are easy to manufacture, making the IW E and IW L simple, safe equipment.

- IW E - complete with pressure monitoring control
- IW L - features an electronic control board, displaying flow rates and conductivity. This board can also control pre-treatment units.

**AVAILABLE OPTIONALS:**
control panel, flushing kit, pre-filters.

## R.O.²

Double Reverse Osmosis in series is the top model in this range, combining the production of excellent water with great versatility.

**IW E - IW L** Series equipment, for industrial and drinking water applications

# TECHNICAL SPECIFICATIONS

| MODEL | INSTALLED POWER kW | PIPE FITTINGS in ( feeding) inches | PIPE FITTINGS out ( product) inches | NOMINAL FLOW RATE * l/h | DIMENSIONS width x depth x height ** mm | SHIPPING WEIGHT kg |
|---|---|---|---|---|---|---|
| **DESALINATORS FOR SEA WATER** | | | | | | |
| SW 300 | 5.5 | 1 | 1/2 | 300 | CHANGES ACCORDING TO CONFIGURATION | |
| SW 600 | 5.5 | 1 | 1/2 | 600 | | |
| SW 900 | 15 | 1 1/2 | 3/4 | 900 | | |
| SW 1500 | 18.5 | 1 1/2 | 1 | 1500 | | |
| SW 2000 | 18.5 | 1 1/2 | 1 | 2000 | | |
| SW 3000 | 37 | 2 | 1 1/2 | 3000 | | |
| SW 4000 | 45 | 2 1/2 | 1 1/2 | 4000 | | |
| SW 6000 | 55 | 2 1/2 | 1 1/2 | 6000 | | |
| **DOUBLE REVERSE OSMOSIS DESALINATORS IN SERIES** | | | | | | |
| R.O.² 400 | 1.5 + 1.5 | 1 | 1/2 | 500 | 1000 x 750 x 1700 | 220 |
| R.O.² 800 | 2.2 + 2.2 | 1 | 1/2 | 1000 | 1000 x 750 x 1700 | 260 |
| R.O.² 1200 | 3 + 3 | 1 | 1/2 | 1500 | 1000 x 750 x 1700 | 310 |
| R.O.² 1600 | 4 + 4 | 1 | 1/2 | 2000 | 1000 x 750 x 1700 | 350 |
| **DESALINATORS FOR BRACKISH WATERS** | | | | | | |
| MFP 400 | 1.5 | 1 | 1/2 | 500 | 500 x 660 x 1550 | 115 |
| MFP 800 | 1.5 | 1 | 1/2 | 1000 | 500 x 660 x 1550 | 140 |
| MFP 1200 | 2.2 | 1 | 1/2 | 1500 | 500 x 660 x 1550 | 170 |
| MFP 1600 | 2.2 | 1 | 1/2 | 2000 | 500 x 660 x 1550 | 190 |
| MFP 2200 | 4 | 1 | 3/4 | 2500 | 500 x 660 x 1800 | 220 |
| MFP 2800 | 4 | 1 | 3/4 | 3000 | 500 x 660 x 1800 | 250 |
| MFP 3300 | 4 | 1 | 3/4 | 3500 | 500 x 660 x 1800 | 280 |
| IW E 5 | 7.5 | 2 | 1 1/2 | 5000 | 3800 x 1200 x 1600 | 650 |
| IW E 8 | 7.5 | 2 | 2 | 8000 | 3800 x 1200 x 1600 | 710 |
| IW E 12 | 11 | 2 | 2 | 12000 | 3800 x 1200 x 1600 | 950 |
| IW E 16 | 11 | 2 | 2 | 16000 | 5500 x 1200 x 2000 | 1280 |
| IW E 20 | 15 | 3 | 2 | 20000 | 5500 x 1200 x 2000 | 1370 |
| IW E 23 | 15 | 3 | 2 | 23000 | 7200 x 1200 x 2000 | 1600 |
| IW E 26 | 18.5 | 3 | 2 1/2 | 26000 | 7200 x 1200 x 2000 | 1850 |
| IW E 30 | 22 | 3 | 2 1/2 | 30000 | 7200 x 1200 x 2000 | 2100 |
| IW L 5 | 7.5 | 2 | 1 1/2 | 5000 | 3800 x 1200 x 1600 | 650 |
| IW L 8 | 7.5 | 2 | 2 | 8000 | 3800 x 1200 x 1600 | 710 |
| IW L 12 | 11 | 2 | 2 | 12000 | 3800 x 1200 x 1600 | 950 |
| IW L 16 | 11 | 2 | 2 | 16000 | 5500 x 1200 x 2000 | 1280 |
| IW L 20 | 15 | 3 | 2 | 20000 | 5500 x 1200 x 2000 | 1370 |
| IW L 23 | 15 | 3 | 2 | 23000 | 7200 x 1200 x 2000 | 1600 |
| IW L 26 | 18.5 | 3 | 2 1/2 | 26000 | 7200 x 1200 x 2000 | 1850 |
| IW L 30 | 22 | 3 | 2 1/2 | 30000 | 7200 x 1200 x 2000 | 2100 |

* Average flow rate based on the following hypothetical data (except for sea water desalinators): temperature 20 °C; TDS ≤ 1500 ppm as NaCl; recovery ratio 75%.

** Dimensions are approximate and may change.

Inlet water pressure: > 2 bar.

POWER SUPPLY
380 V – 50 Hz three-phase. The installed power may vary depending on the specific features of the project.

NOTES
Series SW, R.O.², IW E and IW L desalinators are delivered without the electrical control panel. Series MFP desalinators are equipped with electrical control panel.

CE *Designed and manufactured according to CE Directives in force*

QUALITY SYSTEM CERTIFIED ACCORDING TO UNI EN ISO 9001:2000 NORM

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