



# Canadian Clear

Future generation technologies

OPENING OCEAN TO THE WORLD



Sea Water Desalination  
Simplified.

## Desalination - Points to Ponder:

Water is a source of life but the world has a total of 1.65 billion km<sup>3</sup> of Water. However, only 0.3% of this total quantity is theoretically usable as a fresh water, and only 10% of that i.e. 0.03% of the world's water) is capable of economically utilization.

In the environment report "Global 2000" the following comments occurs:

"The notion that water is a freely available resource will no longer be encountered anywhere in the world in 20 years time.

Worldwide seawater Desalination has been a very effective and economical way of producing potable water for drinking and industries. It is a myth that, seawater Desalination is so exorbitantly expensive that it is unaffordable.

Reverse Osmosis plants to convert seawater to potable drinking water and for other usages have been prevalent throughout the world for more than 3 decades. The seawater Reverse Osmosis membranes have improved in technology and efficiency over the last 15 years. The current technology available for seawater Desalination through Reverse Osmosis System has proven to be cost effective and easily maintainable. With proper process design and efficient conservation of energy seawater Desalination system with Reverse Osmosis can be a long-term solution at an affordable price. With technologies to save power such as "energy recovery turbines" cost per ltr. of Desalinated seawater to potable water can work as low as US\$0.001 per litre. Including cost of running, maintenance and power.

## Efficiency & Expertise:

Canadian Clear Group of Companies established in 1972 to overcome the need for pure potable water for drinking and for industries. In Canadian Clear our Research and Development wing have worked to design develop, manufacture complete Water Treatment and Purification System. For the last four decades CANADIAN CLEAR has successful designed, manufactured, installed and commissioned a number of Water Treatment Plants with Indigenous and foreign technical know-how to prime industries, fertilizers, hospitals, Government and semi-Government organization, off-shore oil rigs, refineries, soft drink manufacturers, breweries and mineral water manufacturers for various applications.

With proper selection of seawater source understanding the factors of high tide and low tide, backwaters of sea can be exploited with much higher efficiency through the Reverse Osmosis System than directly drawing water from the sea. The sea is an endless resource of water and will never deplete even if large quantities of water are drawn from its resource. The reject water from the Reverse Osmosis System can be sent back in the sea as they constitute only with concentrated salts which was originally available in the sea water. The concentrated salt is of such micro-level that it can never in crease the concentration of salts in the seawater.

Alternatively, the reject water from the Reverse Osmosis System can be utilized for producing common salt by natural drying method or by flash evaporators or other salt recovery methods. The investments on Desalination plants today are not highly exorbitant as it was 15 to 20 years ago. With world market opening up to open trade the viabilities of such projects are very encouraging.

Canadian Clear with its vast expertise in the field of Water Treatment in the last 4 decades has come out with cost effective and high efficiency RO recovery systems for seawater Desalination.



## Design & Conceptualization:

Canadian Clear with vivid innovation and development has created different designs and concepts for Desalination. All our systems are compact by eliminating the high investment on civil infrastructures. The cost of implementing the Desalination Plant is concentrated towards technology, plant and machinery rather than dumping it on gigantic civil structures.

Canadian Clear has focused its expertise on compactness and readily available complete systems, which saves the essential factor of time. Technology is other primary core sector of Canadian Clear, which allowed us to be different from our competitors.

We differ in technology, structuring layout, compactness, operation cost and in deliverance.

## Containerized Reverse Osmosis Systems

(Brackish water/Seawater:

Canadian Clear has over the years built specialized brackish water and seawater plants keeping in focus relief agencies, war time army requirements, make shift facilities as well as sea side resorts.

Containerized Brackish/Seawater Desalination Systems are manufactured in 20 feet and 40 feet containers to meet the needs for pre-installed equipments.

## Features:

The containers are well equipped with the following:

- 1) Air Conditioning.
- 2) Wall Paneling.
- 3) Internal Lighting.
- 4) Back-up Generator.
- 5) Metal Checkered Floor.
- 6) Polyurethane Insulation.
- 7) Total Internal Piping with Water Treatment Plant.
- 8) Centralized Power Panel.
- 9) Instrumentation Panel.
- 10) Voltage Protection Devices.
- 11) Overload Protection Devices.
- 12) Windows (Optional).
- 13) Input, Output water Pipelines with enclosed boxes,
- 14) Power Jack Cabling Between Generator & Container Main Panel.

Apart from the above, Canadian Clear uses special CPVC Frontal Piping for the pre-filtration along with advance composite FRP vessels for the Multi Media Filters. The raw Water Pump is in built in the container to provide required feed to the pre-filtration. Specialized hi-tech supports are provided throughout the container to hold equipments and pipings from vibration and also to take the endurance of shifting the container from one place to another. Stainless Steel High Pressure Multistage Pumps from world leading brands like Pump Engineering, FEDCO Sulzer, ERI, Danfos or Canadian Clear (Canada) are used. State of art Advance Composite FRP Epoxy Vessels, which can stand pressures from 400 to 1000 psi, are used as Reverse Osmosis Housings. Reverse Osmosis Membranes for Brackish Water / Seawater are incorporated from the world's leading manufacturers like Toray (Japan), Filmtec (USA) and Canadian Clear (Canada). Reverse Osmosis System CIP system complete with CIP pump, CIP cartridge filter and CIP tank are provided.

Pre Micron Bag Filters as well as Cartridge Filters in SS 316 / 304 prior to the Reverse Osmosis System. All pipings in the RO Systems are made out of SS 316L, 316 and 304. Magnetic Floor Meters are provided in the product and reject outputs. Pressure cutoff switches for high pressure/low pressure are provided interlinked with Annunciator Panel. TDS, pH as well as ORP Digital Display cum Controller are provided interlocked with Annunciator Panel. Input, Output water jacks are provided with hoses for easy connection between containers. User-friendly Manuals are provided along with containerized project for easy start-up at site.

The above systems are totally pre-installed and ready to use within one hour of reaching its destination.

We have bagged the orders for Desalination Plants for the following:



## Experience:

- a) 75,000 m<sup>3</sup>/day - OSWD (Open Sea Water Desalination Plant) - Saudi Arabia 343 X 40 Ft. Containers Mamoth Project.
- b) 100,000 m<sup>3</sup>/day - OSWD (Open Sea Water Desalination Plant) - Eastern Europe Floating Desalination Plant.
- c) 50 m<sup>3</sup>/hour X 16 Units Hurrans Bury - for US Defense.
- d) 100 m<sup>3</sup>/hour X 4 Units Water Wheel, UAE.

## Economics:

With our efficient high end technological design, implemented with the following engineering techniques:

- a) ERCP - Energy Re-claim Critical points.
- b) EEO - Energy Exchange Osmosis.
- C) EF - Environmental Friendly Systems.

With the above mentioned engineering expertise, our systems can Desalinate Seawater at a lowest cost of less than 60 cents/m<sup>3</sup>.

## Technical Features:

### Pre-treatment :-

Wide range of selectivity in Pre-treating Seawater for various applications, including Beach Wells, Sea Floors and on Shelf intake systems.

### Filtration Techniques :-

- a) Clarifiers
- b) Media filters
- c) Ultra Filtration

### Energy Reclaim :-

The process include

- a) Energy Recovery Turbines
- b) Pelton Wheels
- c) Pressure Exchangers



## OUR OFFICES IN INDIA & GLOBAL

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