

# "NEXTGEN" WATER TREATMENT SYSTEMS

**It is different!!!**

State of the art user friendly water treatment system

Reduces TDS, Hardness, Arsenic, Fluoride,

Metals and Salts from Raw Water

Adjustable treated water quality

Electrically operated based on electro adsorption process

Low Power consumption

High recovery Low water Wastage System up to 80%

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**IONIC is pleased to introduce the next generation water treatment system using Capacitive Deionisation (CDI) technology to get the right quality of water. Till recently Reverse osmosis was the only option available or considered for desalting the water inspite of its limitations and disadvantages.**

**A real Alternative to conventional Reverse osmosis plant for desalination of water**

The NextGen\* is a new generation of water treatment system that can treat ground or surface water containing high dissolved salts to produce clean drinkable water that meets WHO standards.

This high recovery system does not use any chemicals for separation of dissolved salts, consumes very low power and has the lowest operating cost

The NextGen Systems uses a purification technology based on electro sorption of ions. Capacitive Deionization is a technology for removing salinity from water. This innovative technology is used to desalinate water without using ion exchange resin or membrane.

**Highlights of the System**

Remotely operated, monitored with your desktop/laptop/smart phone !

Simple!

Low Wastage (10-20% maximum wastage)

Low Power Consumption – can run using alternate energy sources

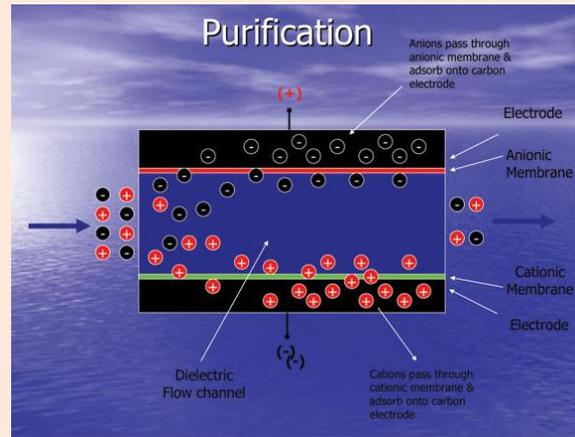
No Chemical Usage – does not use any chemicals in its normal operation

Reduces Salts and Metals by almost 80% - making it safe to consume

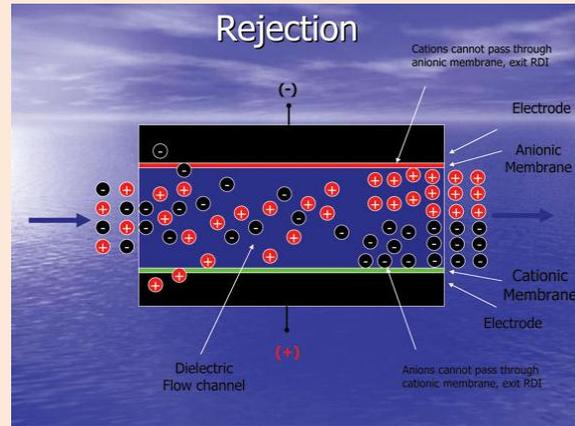
Lowest Operating Costs

Simple to Operate – does not require any specialized skills to operate

Compact in size – making it possible to deploy almost anywhere

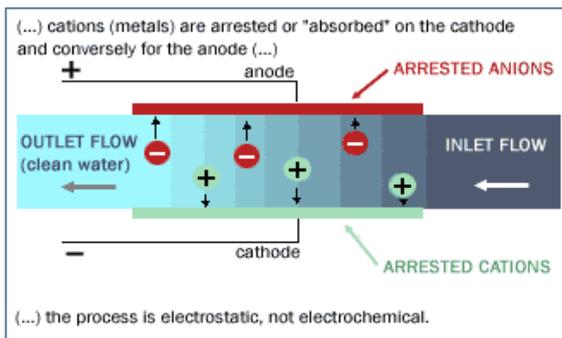


Water is passed through a series of electrodes placed in a compact cell. A voltage of 1.5V is applied between the electrodes. The oppositely charged ions get attracted to the electrodes. Clean, de-ionized water flows out of the system.



Once the surfaces of the electrodes get saturated with ions, the polarity of the electrodes are reversed. The attracted ions drops from the electrodes. The Outlet is shutoff and the drain valve is opened and the concentrate is flushed out.

**FIGURE 01: When Ion-Bearing Water passes between oppositely charged electrodes**



Once the concentrate is flushed out, the drain valve is closed, the outlet valve is opened and the polarity of the electrodes are restored and the system starts the process of de-ionization again. The entire

## THE RIGHT QUALITY OF WATER

Many applications like drinking water, water required for water jet cutting machine, machine coolant preparation, Parts washing etc. does not require complete removal of dissolved salts. The conventional process like R.O / Ion Exchange etc. removes all of the of the salts. Partial or complete demineralization is possible with NextGen unit. Due to this reason, NextGen can be used as a very effective water treatment system for partial reduction of salts. The amount of salt that needs to be reduced can be adjusted with the help of the control system. This unique feature is not available in conventional IX/RO processes which removes all the salts.

### APPLICATIONS

Some of the fields of applications where NEXTGEN makes the most economic impact are:

1. Drinking water treatment of bore well water
2. Water for water jet cutting machine
3. Water for machine coolant preparation
4. Water for parts washing machine
5. Water for low pressure boiler
6. Water for spot free car washing

***The Cost of producing treated water with NG works to 0.02p - 0.03p per liter making it the most economical De-centralized, Point of Entry based water treatment system in the market today***

ECONOMIC DRIVERS	USING NEXTGEN	USING REVERSE OSMOSIS
1. Amount of Input Water required to produce 24,000 liters of treated water per day	29,000	38,000
2. Power required to treat water. This includes pump, UV and other systems required to treat water	2 kWh	4 kWh
3. Consumables required for running the plant. This includes chemicals, membranes, cartridge filters etc	5% of the product cost	15% of the product cost
4. Average Wastage Quantity. Amount of water wasted AFTER consuming power and other consumables	15%	50%
5. Wastage Cost. Excluding the cost of water - assuming 5 paise per liter for both NG and RO system (though RO takes more costs by virtue of higher power consumption and consumables)	5,000 liters X 0.05 = Rs. 250/ day	14,000 liters X 0.05 = Rs. 700/ day

# How the System works

## 2 AFM/UF Filter



A AFM filter is used to take out the suspended particles in the inlet water.

## 1 Pump



NEXTGEN requires pressure in the range of 1.8 to 2 BAR to operate.

A 0.5 HP or a 0.75 HP pump is adequate to deliver this to the NEXTGEN plant.

## 3 Cartridge Filter



The 1 Micron Cartridge filter takes out any residual particles that might have accidentally come from the sand filter

## 4 UV System



The inlet water then passes a high powered UV system to take out bacteria

## 5 Pressure Reducer



The Pressure reducer is the last stage of the process before water enters the CDI unit. The inlet water pressure is reduced to 1.8 BAR at this stage

## 6 CDI Unit



The CDI Unit treats the inlet water and the outlet is sent directly to the outlet tank



Besides the Capital costs, there are many other parameters that goes in determining the economics of operating a water treatment plant.

1. Energy Consumption – what does it take to operate a treatment plant can it be run using alternate energy sources?
2. Reducing water consumption / wastage – How much input water do we need to treat? - Can we reduce the wastage given that water is so scarce?
3. What kind of consumables are required to operate the plant daily.
4. Does the water treatment plant require skilled personnel to operate it
5. How dependable is the water treatment plant to produce the yield consistently - can it run smoothly for a long duration of time



## The Water Footprint

The water footprint of an individual, community or business is defined as the total volume of freshwater that is used to produce the goods and services consumed by the individual or community or produced by the business.

NEXTGEN delivers 80% - 90% of the freshwater after treatment as against 40% - 50% delivered by conventional Reverse Osmosis technology

At a time when freshwater availability continues to be a challenge globally, its time to think on the choice of technologies that

## For further information

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