

# Convert Your Hard Water into DM Water

An ISO 9001 : 2008 Certified



## AUTOMATIC DEMINERALIZER



### Save's Time and Money



### Automatic...

- Rinsing
- Backwash
- Start / Stop
- Regenerates

Level Switches  
In Acid and  
Alkali Tank

### FULLY AUTOMATIC DM PLANT WITH PREFILTER

Mfrs : RO, UF WATER PURIFIER, SOFTENER, ONLINE UPS, SINEWAVE UPS, SOLAR UPS, SERVO STABILIZER.

# DEMINERALIZATION PLANT PROCESS DESCRIPTION

In the basic demineralizer system, cation resins and anion resins are loaded into separate pressure vessels. During the service cycle, water passes through the cation bed first, where undesirable positive ions (cations) such as sodium (Na+), calcium (Ca+2), and magnesium (Mg+2) are exchanged for hydrogen (H+) ions. The water then passes through the anion bed, where similar process removes undesirable negative ions (anions) such as chloride (Cl-), sulphate (SO4)2, and bicarbonate (HCO3-) replacing them with hydroxyl (OH-). Pure water is produced from the combination of hydrogen and hydroxyl ions where they are in contact with each other.

This allows the hydrogen and hydroxyl ions to combine instantaneously to produce water of the highest possible purity. In any demineralizer, The capacity of the resins to exchange ions is finite. As the capacity becomes stressed, ion leakage occurs in the effluent. This is called the breakthrough point. When the breakthrough point is detected, the bed is switched from a service cycle to a regeneration cycle during the regeneration with acid and caustic. Finally, the beds are rinsed thoroughly to yield a service cycle ready condition.

The breakthrough point of a demineralization bed is impacted by its ion exchange capacity, which is affected by water flow rate, ion contaminant concentration, and feed water composition. Regeneration of a bed is costly, due to the need for chemicals and rinse water, pretreatment regeneration waste treatment and labour. Thus the goal is to maintain the service cycle of the bed as long as possible, while ensuring that the system continues to deliver water of the required purity.

Conductivity sensors are successfully employed in demineralizers to monitor the operation of the bed and to predict and signal the all-important breakthrough Point.

In a cation bed, salt impurities are converted to an acid form, typically hydrochloric acid (HCL). When this happens, the conductivity of the water increases dramatically, because the hydrogen ion is far more conductive than the mineral ion it has replaced.

## Technical Specifications

ION EXCHANGE UNIT	Cation Column	Anion Column
NO. REQUIRED	One	One
TYPE OF RESIN	Strong Acid Cation (H+)	Strong Base Anion (OH-)
TYPE OF CONTROL VALVE	Single Multi Port Valve	Single Multi Port Valve
M.O.C	FRP/SS	FRP/SS
REGENERATION CHEMICAL	Hcl	NAOH
RESIN QTY	30 Lt. or More	30 Lt. or More
REGENERATION TANK	One	One
REG.TANKCAPACITY	50 Lt. or More	50 Lt. or More

## LIFE LINE OF :

RO Water Plant, Battery Manufacturing Industries  
Swimming Pool, Food And Beverage Industries  
Textile Industries, Powder Coating Industries  
Chemical Industries, Pharmaceutical Industries  
High Pressure Boilers, Electroplating Industries  
And Many More...



**COSMIC**

AN ISO 9001 : 2008 CERTIFIED

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**SALES, SERVICE BY :**



**Fully Automatic DM Plant With Prefilter**