

ONLY SOLUTION TO HARD WATER IS
WATER SOFTENER..

Eco Crystal 's Latest Innovation Combination of Physical & Chemical Water Softener



What is Physical water softener ?

A Physical water softener is a process of water softening without any change in the chemistry of the water. This means no chemical is added or taken out from water. The process is done with the application of magnet in the device.

Water passes through the device to encounter magnetic field. Magnetic poles of water molecules are activated, the positive calcium ions and negative carbonate ion get attracted and collide. Thereby CaCo₃ molecule corresponding to Argonite are formed. These are microscopically small & flow with water instead of forming scale crusts. The water is physically softened.

What is Chemical water softener ?

A water softener is a filtration system that removes hardness-causing calcium and magnesium minerals from your water through a process called ion exchange.

Hard water wreaks havoc on the modern home. Scale builds up in your pipes, clogging them and decreasing water pressure. Scale dramatically shortens the lifespan of appliances and leaves filmy soap scum across bath rooms and kitchen and dries out hair and skin and need for frequent replacement of geyser coli. water softener is a solution to all these problems and protects the appliances.

How does a water softener work ?

A water softener removes calcium and magnesium from water through a process called ion exchange. When the hard water enters into the mineral tank, it flows through a bed of spherical resin beads. These plastic beads, usually made from polystyrene, are charged with a sodium ion.

As the hard water passes through the resin, the beads grab ahold of the mineral ions and remove them from the water. When the bead seizes the mineral ion, the sodium ion is released. The column of resin strips all the hardness out of the water as it passes through the mineral tank, and softened water flows out into your home.

What is Resin and what does it do?

An ion-exchange resin is a resin or polymer that acts as a medium for ion exchange. It is an insoluble matrix normally in the form of small microbeads fabricated from an organic polymer substrate and is used to replace the magnesium and calcium ions found in hard water with sodium ions. When the resin is fresh, it contains sodium ions at its active sites. When in contact with a solution containing magnesium and calcium ions, the magnesium and calcium ions preferentially migrate out of solution to the active sites on the resin, being replaced in solution by sodium ions.



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What are the components of Manual water softener?

A water softener is made up of three components: a control valve, a mineral tank, and a brine tank. These three work in conjunction to remove the minerals from hard water, monitor the flow of water, and periodically clean the system through a regeneration process.

1. FRP Vessel

The mineral tank is the chamber where the hard water is softened. The water supply line feeds the hard water into the tank. The water seeps through the bed of resin beads, depositing the water-hardening calcium and magnesium ions. The water exits the tank soft and flows through your pipes and out to your household appliances.

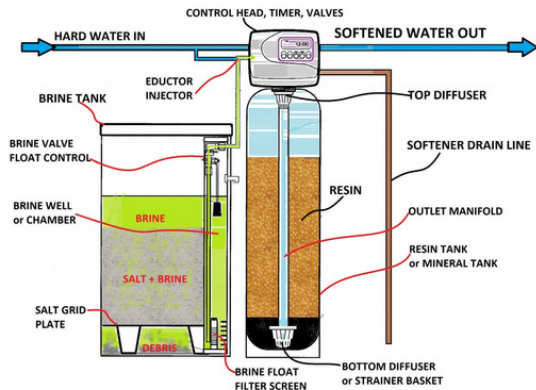
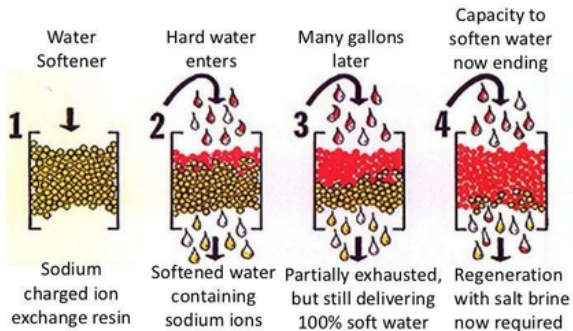
2. The Multiport valve

Sand and DE filters use a multiport valve to help clean or backwash the filter media. Multiport valves are called multiport valves because they have multiple ports inside the valve that allows the water to move in multiple directions.

3. Brine tank

The brine tank aids the water softening system in regeneration. It is a shorter tank that sits adjacent to the mineral tank. The brine tank holds a highly concentrated solution of salt (or sometimes potassium) to restore the resin beads' positive charge.

How Water Softeners Work SOFTENING CYCLE



Benefits of Water Softener

- Disintegration of existing lime & rust crusts down to a thin protection coat & these crusts are softened and easier to remove.
- Clean water taps and shower heads.
- Prolonged life of heating element in geyser
- Saving in detergents

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ECO CRYSTAL WATER SOFTENER'S..



MODEL	1000	3000	5000	10000
Vessel	10x54	13x54	20x69	30x65
Salt (Kg)	7-10	10 - 15	20 -25	40 -50
Resin Qty (ltrs)	60	100	280	450
Brine tank	50	50	100	400

1000 LPH

3000 LPH

Options of Softeners for Hard water

1. Sediment filter with Softener
2. Sand+ Carbon with softener
3. Sediment+ Sand + Carbon with softener
4. Sand filter + Carbon filter for soft water area



5000 LPH

10000 LPH

What is Salt regeneration and how to do it ?
Over time, the resin becomes saturated and must be recharged or regenerated. Salt is used to accomplish this process of removing the minerals from the resin. This cycle refreshes your water softener so it can continue working as efficiently as possible.
Salt regeneration process is back-washing and then re-charging of the water softener using salt in the vessel.



COMPONENTS OF WATER SOFTENER...



TOP AND BOTTOM STAINER WITH PIPE
To restrict resin beads passing through the water



SALT TANK FOR REGENERATION
It is the process through which the softener flushes out the minerals it catches from the hard water



PRESSURE GAUGE FOR WATER PRESSURE
Minimum inlet water pressure should be 0.5bar



RESIN FOR REMOVAL OF HARDNESS
It removes the hardness from the water which is in the form of Calcium and magnesium

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