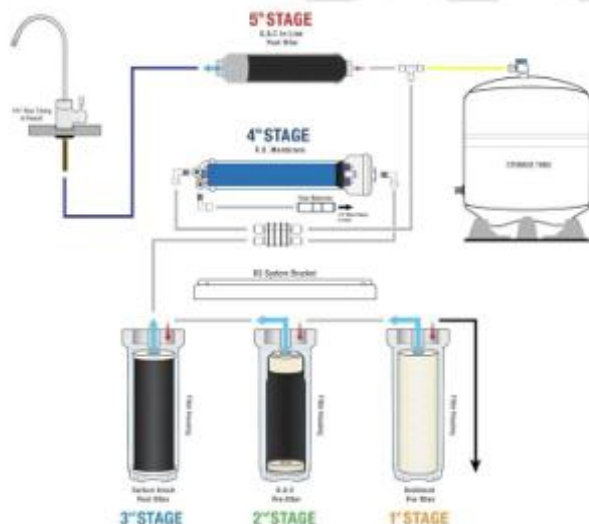


WATER FILTER & WATER SOFTENER WITH SEDIMENT & CARBON FILTER



A water softener removes hardness minerals (calcium and magnesium) to prevent scale build-up, while a reverse osmosis (RO) system purifies water by removing a wide range of contaminants, including minerals, for drinking. Water softeners are for whole-house use, protecting plumbing and appliances, while RO systems are typically used for point-of-use for drinking and cooking. Often, the best solution is to use them together, with a water softener placed before the RO system to protect the RO membrane from hard water.

Water Filter



What is a Water Filter?

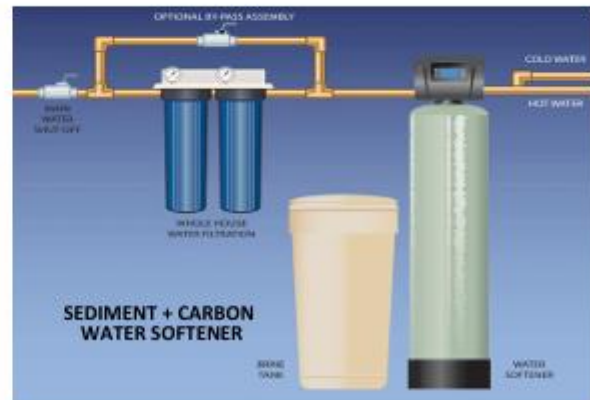
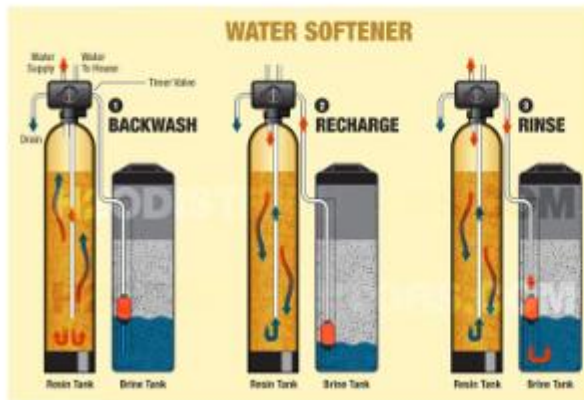
A water filter is a device or system that removes impurities from water to improve its quality, making it clearer, better-tasting, and safer to drink and use.

Water filters remove a wide range of contaminants from water, including sediments, chlorine, bacteria, viruses, and other chemical pollutants, depending on the type of filter used.

Types of Filters and How They Work?

- **Sediment Filters:** Capture and remove large particles like sand, silt, and rust.
- **Activated Carbon Filters:** These remove chlorine, taste, and odour by adsorption.
- **Reverse Osmosis (RO) Filters:** These systems use a semi-permeable membrane to remove a wide range of contaminants, including heavy metals, bacteria, and viruses.
- **UV Filters:** Utilise UV radiation to eradicate viruses and germs.

SEDIMENT + CARBON + WATER SOFTENER



What is a water softener?

A water softener is a device that removes minerals like calcium and magnesium from hard water through a process called ion exchange. It works by replacing the "hard" mineral ions with softer sodium or potassium ions, which prevents scale build-up on plumbing and appliances, improves cleaning efficiency, and can lead to better skin and hair.

A water softener with sediment and carbon filters works as a multi-stage process. First removing physical particles, then absorbing chemical contaminants and finally using a water softener to remove hardness minerals. The sediment filter removes dirt and rust, the carbon filter removes chlorine and odours, and the water softener exchanges calcium and magnesium ions for sodium ions, resulting in clean, soft water.

Stage 1: Sediment filter stage

- **Function:** This is the first line of defence, physically trapping large particles from the water.
- **How it works:** Water passes through a porous material (like a cartridge or mesh) that holds back and removes contaminants such as sand, silt, dirt, and rust.
- **Result:** It protects the downstream filters and the rest of the system from getting clogged.

Stage 2: Carbon filter stage

- **Function:** This stage removes chemical impurities, odours, and bad tastes.
- **How it works:** Water flows through activated carbon (often made from coconut shells or coal) that has a porous surface area. Contaminants like chlorine and other organic compounds adhere to the surface of the carbon in a process called adsorption.
- **Result:** The water is cleaner, with improved taste and smell.

Stage 3: Water softener stage

- **Function:** This removes the "hard" minerals, calcium and magnesium, that cause scale build-up.
- **How it works:** Water passes through a tank containing resin beads coated with sodium or potassium ions. The hard minerals in the water are "exchanged" for the sodium or potassium ions, which are then left in the water.
- **Result:** The water is softened, which helps prevent lime scale in pipes and appliances.

Stage 4: Regeneration cycle

- **Function:** Over time, the resin beads become saturated with calcium and magnesium ions and need to be recharged.
- **How it works:** The system periodically flushes the resin tank with a concentrated salt (brine) solution from a separate tank. This high concentration of sodium or potassium ions forces the calcium and magnesium off the beads, which then go down the drain.
- **Result:** The resin is restored to its original state, and the system is ready to soften water again.