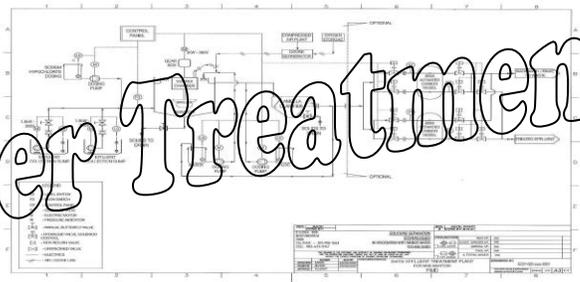


# Water Treatment



## Nimbus Treatment-Package Plant – Skid or Container Systems

- Designed Water Treatment Plant.
- 1.2 – 400 m<sup>3</sup> / day & highly flexible.
- Quick Start-up vs. conventional civil works.
- Fully Automatic and Mess Free.
- Meet any raw water treatment requirements.
- Typical applications include, wastewater in general, shopping centers, Camps, Military, Schools, Universities, housing projects, hotels, lodges, games farms, hospitals, remote locations, mining waste water, commercial & industrial effluent to discharge standards.



### Sand Filter

Sand filtration is one of the most important basic technical processes in water treatment. It is a mechanical separation process in which suspended particles in water are retained in a filter layer (e.g. a layer of sand) through which water is passed. During the filtration process the pores in the filter layer become blocked by contaminants removed from the raw water passing through it. This leads to a gradually increasing drop in pressure.

The backwash phase will be initiated by the filter flush timer. Here, the impurities are flushed out of the filter layer. During the operating phase, water passes downwards through the filter, while during the back-washing phase, it travels back up through the filter layer. The layer of sludge which has built up on the surface of the filter layer is broken up at the start of the back washing process, creating a fluidised bed. The rotating motion of the grains of sand removes the dirt particles which have become attached to the surface of the granules and they are carried away from the filter with the rising flow of water



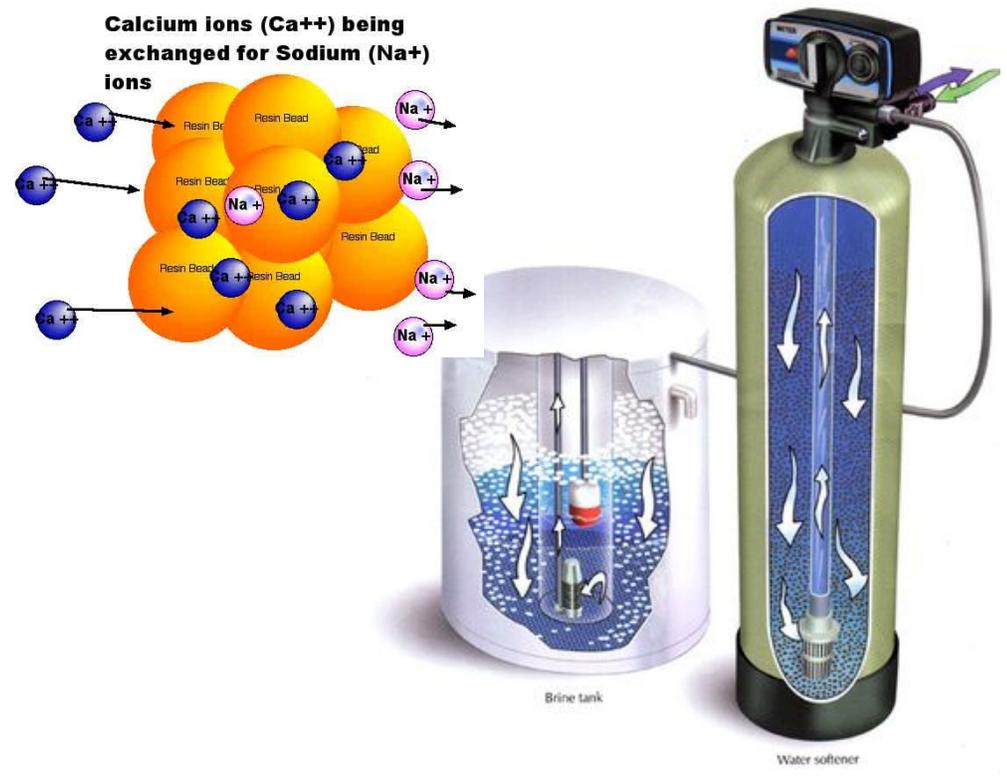
**Birm Iron Removal**

Birm is an efficient and economical media for the reduction of dissolved iron and manganese compounds from raw water supplies. It may be used in either gravity fed or pressurized water treatment systems. Birm acts as an insoluble catalyst to enhance the reaction between dissolved oxygen (D.O.) and the iron compounds. In ground waters the dissolved iron is usually in the ferrous bicarbonate state due to the excess of free carbon dioxide and is not filterable. Birm, acting as a catalyst between the oxygen and the soluble iron compounds, enhances the oxidation reaction of Fe<sup>++</sup> to Fe<sup>+++</sup> and produces ferric hydroxide which precipitates and may be easily filtered. The physical characteristics of Birm provide an excellent filter media which is easily cleaned by backwashing to remove the precipitant. Birm is not consumed in the iron removal operation and therefore offers a tremendous economic advantage over many other iron removal methods.

**Activated Carbon Filter**

The carbon filter is designed to remove taste, odour and mainly chlorine and excess ozone which can be extremely harmful to humans if consumed in large quantities. The backwash phase will be initiated by the filter flush timer in the control panel. Here, the impurities are flushed out of the filter layer

**How Water Softeners Work - Lime Scale Removal – Ion Exchange Technology**



# Water treatment & purification solutions

Pure For Best Life  
Water



The diagram above shows the two parts of a standard commercial or residential water softener. On the left, the brine tank which holds the salt that regenerates the unit, and on the right the water softener itself.

A water softener is an ion exchanger. It is not a water filter.

Hard water—water with a high calcium/magnesium content—enters the softener through the “In” port indicated by the green arrow. It passes through the control valve and into the main tank, where it goes from top to bottom through a bed of resin that “softens” it.

The resin consists of specially manufactured beads that have been saturated with sodium ions. “Softening” occurs as the hardness minerals, the calcium and magnesium ions, in the water attach themselves to the resin and are “exchanged” for sodium, which goes into the water in their place.

The softened water then enters the long center tube, called a riser or a “dip tube,” via the strainer basket in the bottom of the tank and passes upward through the riser. The water then exits the softener via the control valve (blue arrow) and is sent to the home.

When the resin becomes saturated by hardness minerals, it no longer has the ability to soften water. The water softener then automatically goes into regeneration. The regeneration process is initiated by a timer or a meter, depending on the type of softener. More of this below. By this process the hardness minerals are washed down the drain (via a drain tube not shown in the diagram), and the resin bed is rinsed, resettled, and recharged with sodium. It is now again ready to soften water.

The regeneration process is accomplished by passing very salty water from the brine tank through the resin. The brine solution is so concentrated that its high sodium content displaces the calcium and magnesium ions on the resin.

The brine tank must remain filled with softener salt at all times so that it can regenerate the softening resin again and again.



- **Designed for potable water, effluent or wastewater treatment requirements and end result required.**
- **Any Capacity and designed to specifications.**
- **From design, fabrication, installation, commissioning and on-site training, a Nimbus WWTP will deliver the results.**
- **Meet future legislation requirements with regard to discharge of wastewater, or effluent.**

**Robust Operation –**

**Nimbus Water Treatment Package Plant meet stringent standards consistently. Backed by EEC International design & service.**



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