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WATEX | Technological solutions and Equipment for Water treatment

Water softening

WATEX has more than 10 years of experience in engineering of effective water treatment plants with a long life and minimum maintenance. Implementation of water softening units is the day to day work when new water treatment plant has to be designed. Our challenge is the right plant application for the right reason by using competence, technical know-how and experience of our engineers.

Why softening?

Softened water is important in many industries for process water (Rinse, humidification, ingredient, boiler water e.t.c) Softening prevents limescale deposits in piping, steam boilers, district heating installations, hot-water units and heat exchangers. Water softening means expanding the life span of different industrial water-based applications and improves working of solar heating systems, air conditioning units.

Problems

Hardness



Hardness salts, Ca and Mg form scale deposits on heat exchangers, nozzles, fittings, pipes, sanitary facilities. Fine technical equipment rapidly out of order or increasing power consumption.

Solution

The solution for these problems is softening by ion exchange resins that are regenerated with NaCl.

WATEX offers several types of softening units. Non-stop production plant **WATEX CMS Twin**, or parallel production plant **WATEX CMS Duplex, Triplex** etc. with many tanks in line. Flow rates for standard modules: Up to 50m³/h per unit. Capacity of customized module is up to 150 m³/h.

How softener works?

- Water softeners are filter type for ion exchange purpose that are made to remove positively charged ions.
 - Softeners mainly remove calcium (Ca²⁺) and magnesium (Mg²⁺) ions, which are often referred as 'hardness minerals'.
- WATEX Softeners can operate automatic and rated on the amount of hardness it can remove before regeneration is necessary.
- A water softener collects hardness minerals within its filter media and flushes them away on regular regeneration.

Benefits of Industrial Water Softening

- Scale reduction
- Initial and long-term cost savings
- Improved process equipment efficiency
- Reduced maintenance, chemical, and detergent costs
- Reduced energy and water consumption

Applications

- Boiler & Cooling tower make-up water
- Ultra soft water for oil field steam injectors
- Ingredient, process and utility water for food and beverage manufacturing
- Reverse Osmosis (RO) and Deionization (DI) pre-treatment

Softening plant series

WATEX CMS TWIN



WATEX CMS DUPLEX



APPLICATION

WATEX CMS TWIN and WATEX CMS DUPLEX series equipment is a water softening equipment for process and drinking water purposes. It is able to reduce water hardness and iron content.

OPERATION PRINCIPLE

Softener columns work interchangeably. One column after regeneration goes in standby and continues filtration when second column switches to regeneration. System produces softened water with constant flow rate.

Softener columns work simultaneously. When one column goes to regeneration, system produces water with half of water flow rate.

FILTER PERFORMANCE

For regeneration of filtering material (ion resins) reagent (NaCl or salt tablets) is used. The filter columns are filled with ion exchange resin (cationic), which reduces hardness and iron concentration in water. The control units perform automatic regeneration. Capacity of filter material is calculated according to the amount of resins and raw water quality.

TANK OPTIONS

Softener tanks can be made of steel (galvanized or food grade coating), fiberglass or stainless steel. For a less often salt refiling, Brine tank volume is adapted to softener capacity.

FILTER CONTROL

WATEX CMS Softeners are equipped with a Clack WS CI control units, with a built-in flow meter that performs filter material regeneration according to water consumption. Both filter columns do not perform regeneration at the same time. Both Softening setups provide customers with purified water 24h a day. Regeneration is performed immediately after filtration ability of filter material is reached. Flowmeter saves water and salt used for filter regeneration. Control unit saves all information in case of power failure. Equipment has many parameters that can be adjusted according to needs, such as washing time, frequency, reagent consumption, and so on.

EQUIPMENT MAINTENANCE

Refiling brine tank with the Salt tablets is the main running issue of the Softening system. Annual maintenance recommended once in a year.

RECOMMENDATIONS

Before to select an equipment, it is recommended to test the raw water chemical composition. Before the water filter, it is preferable to install a mechanical filter to ensure long-term equipment service life.



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