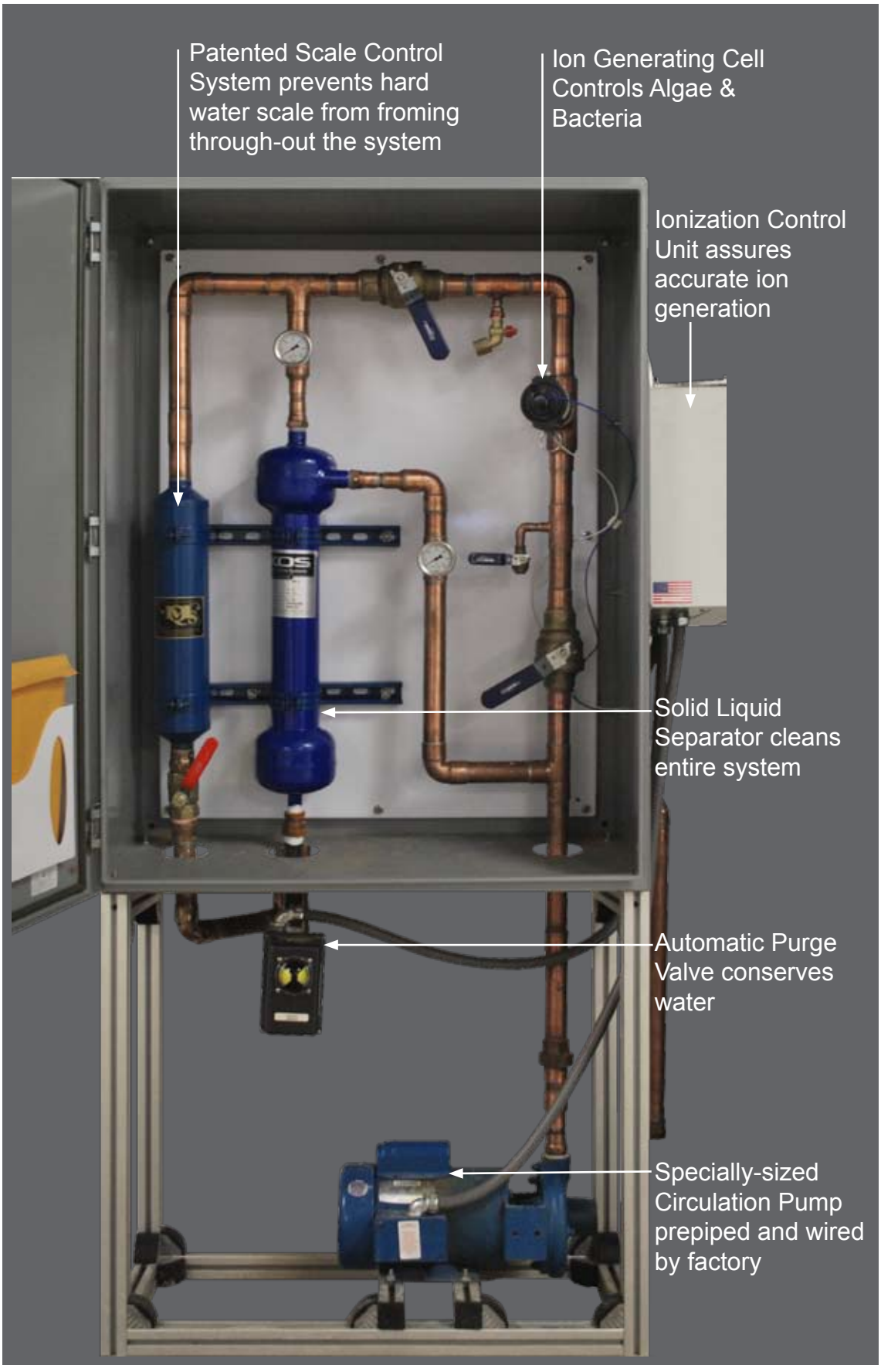
Taylor Dynamometer

Water Treatment & Filtration System

Water Treatment



Water Treatment & Filtration System

Abstract

The Taylor Dynamometer water treatment & filtration system is a synergistic, self-contained, chemical free system for the treatment of cooling towers. The system is stand alone, side-streamed equipment that includes a circulation pump separate from your tower system. The system does not interfere with the operation of your cooling tower.

The Taylor Dynamometer water treatment & filtration system is comprised of the following equipment:

- CWI Series scale control unit
- Centrifugal liquid solid separator
- Automatic programmable purge valve
- Programmable copper/silver ion generator
- Sweeper jets installed in the tower basin and powered by the system pump

CWI Scale Control Unit

CWI Scale Control Unit for the control of hard water scale. This component will prevent the formation of hard water scale without the use of chemicals, salt or electricity.

Installed as an integral component, in the NEMA 4 cabinet, the CWI unit will alter the structure of the electrically charged molecules (ions of calcium and magnesium salts) to form a soft sludge rather than a hard scale on the condenser tubes, tower fill and all other chiller/tower components and plumbing. The resulting sludge is removed by the purge (tower bleed system). This component requires no maintenance or operator attention.

The tower/chiller will operate far more economically when scale free. Considerable savings in energy are the result. Prolonged system life is an additional benefit. A scale free tower/chiller system will conserve energy by operating far more efficiently. Additionally, the soft, water-soluble film that forms on the chiller tubes helps to prevent corrosion without inhibiting heat transfer.

Centrifugal Filter

Centrifugal filter will remove tower system debris normally associated with cooling towers. Cooling tower basin, or remote sump debris, harbor bacteria, including Legionella, and other bio-mass. Additionally abrasive particulates, if not removed, will circulate throughout the tower/chiller system causing accelerated wear, and can accumulate in low flow areas of the condenser. This mess normally requires extensive maintenance to out each year, if not more frequently.

This component operates without any moving parts. The pump integrated in the system supplies water flow through the centrifuge. Clean water is returned to the tower while the particulates are contained in a separate component until purged.

The debris normally associated with tower operation will be continuously removed as it tries to form in the tower basin. The basin will remain clean and free from any feed and breed ground for the formation of bio-mass, bacteria, including Legionella, and other undesirable materials.

The Taylor Dynamometer Water Treatment & Filtration System, for complete cooling tower/chiller treatment requires only minimal attention by maintenance personnel to achieve economical, chemical free, maximum performance and protection.

Automatic Bleed Valve and Timer

Automatic Bleed Valve and Timer is integrated into the system. The valve requires 120V electrical connection.

The timer is programmable to meet the specific requirements of each installation. Normally the timer is set to bleed the tower for 15 seconds every four hours.

Towers normally bleed off approximately 800 to 1400 gallons of water per day per 100 tons of capacity to maintain TDS in a range where chemicals are effective. Since the system treats tower systems with physics rather than chemicals, this waste of water is not necessary. The system is designed to bleed off approximately 40 to 100 gallons of water per day per 100 tons of capacity.

Copper/Silver Ion Generator

The Copper/Silver Ion Generator produces environmentally friendly and benign ions of copper (90%) and silver (10%) for economical and effective control of algae, bacteria including Legionella, and other bio-mass.

Operates by passing low voltage DC current through a cell ontaining a blend of 90% copper and 10% silver in a sacrificial anode bar. The concentration of copper/silver ions is programmable through the system control panel. Weekly copper level tests insure economical and effective biological control. The discharge of water containing ions is well below EPA standards.

This treatment has been proven to be far more effective than raditional chemical treatment methods, and at a fraction of the price. Additionally, chemical treatments are highly toxic and polluting. This eliminates the need to handle, use and discharge these chemicals into the environment.

Sweeper Jet System

The sweeper Jet System will constantly flush the tower basin to remove any debris.

The discharge water from the system is pumped back to the tower basin through a series of sweeper jets which direct all the debris toward the source water conduit for the system. The source water is drawn up through this conduit, which is
located in the bottom of the tower basin, with holes spaced along the full length of the basin and facing downward.

Keeping the tower basin clean is absolutely essential for proper maintenance and control of algae, bio-mass and Legionella. Normally hours of maintenance is necessary to clean out the basin. During this procedure, workers are exposed to biological contamination.

Taylor Dynamometer Water Treatment and Filtration System Procedure:

1. Install the system in close proximity to the cooling tower (or remote basin if appropriate)
2. Install sweeper jets and suction conduits in the tower basin, configured to sweep debris toward the pick up conduits.
3. Adjust ionizer output to maintain .5 to 1.0 ppm of copper ions in the tower water. Use provided Cu test kit to establish system timer settings.
4. Clean ion generating anodes every two weeks to maintain peak performance.
5. Visual check of the cooling tower for algae and sump debris, and tests to confirm pH and conductivity is all that is normally required to maintain the system.
6. Expect a dramatic increase in tower system operating efficiency while reducing maintenance and eliminating the use of toxic, expensive and environmentally damaging chemicals.

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