The HydroPlex® System

PHYSICAL WATER TREATMENT

Making Sense Of Energy Technology

HydroPlex® Technology

1. The patented scale control system prevents hard water scale from forming throughout the tower/ chiller system.
2. Ionization control unit assures accurate ion generation.
3. Patented ion generating cell controls algae, bacteria and legionella.
4. Centrifugal filter cleans tower system water.
5. Automatic purge valve purges solids from the filter and conserves water.
6. Circulation pump maintains constant treatment.
7. Sweeper jet system constantly cleans tower basin (not shown).

ECS Manufacturing Facility : 20026 Progressive Drive, Strongville, Ohio 44149 Phone: 1-877-236- 4260 www.ecsh2o.com

HydroPlex®

Designed & Manufactured by ECS

ABSTRACT

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

The ECS HydroPlex® is comprised of the following equipment:

- ECS 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 HydroPlex® pump

COMPONENT

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. .

OPERATION Installed as an integral component of the HydroPlex®, 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

RESULTS (eliminate toxic chemicals, conserve energy)

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.

COMPONENT

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 clean out each year, if not more frequently.

OPERATION

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

RESULTS (reduce maintenance)

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. Efficiency will be greatly improved and water usage will be reduced by removing the debris which would normally foul the tower fill and condenser tubes.

The ECS HydroPlex®™ for complete cooling tower/chiller treatment requires only minimal attention by maintenance personnel to achieve economical, chemical free, maximum performance and protection.

COMPONENT

AUTOMATIC BLEED VALVE AND TIMER is integrated into the HydroPlex®. The valve requires 120V electrical connection.

OPERATION

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.

RESULTS (conserve water)

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 HydroPlex® treats tower systems with physics rather than chemicals, bleed off can be reduced and the tower system can be operated at a higher TDS. Reduced water consumption is the benefit.

COMPONENT

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.

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

RESULTS (eliminate toxic biocides)

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

COMPONENT

SWEEPER JET SYSTEM will constantly flush the tower basin to remove any debris.

OPERATION The discharge water from the HydroPlex® 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 for the HydroPlex® is through a “Spool Piece” installed in the condenser supply pipe. This “Spool Piece” doubles the diameter of the existing conduit for five feet, to slow down the velocity of the water. A 6” tap at the downstream end draws particulates and water which are directed to the HydroPlex® to be filtered and further treated.

RESULTS (eliminate breed grounds for legionella, reduce maintenance)

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.

HydroPlex® Procedure:

1. Install the HydroPlex® in close proximity to the cooling tower (or remote basin if appropriate).
2. Install sweeper jets in the tower basin and a “Spool Piece” on the condenser supply line.
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 HydroPlex® 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 HydroPlex®
6. Expect a dramatic increase in tower system operating efficiency while reducing maintenance and eliminating the use of toxic, expensive and environmentally damaging chemicals.