Triangularwave Technologies, Inc. (TWT®)

CHEMICAL-FREE WATER CONDITIONING & TREATMENT for the HVAC INDUSTRY

Technologically Advanced Products, Systems and Methods for Water & Fluid Management Providing Comprehensive End-To-End Solutions

Triangularwave Technologies, Inc. is the Leader in Chemical-Free HVAC Fluid Conditioning & Treatment Systems. Using It's Patented Triangularwave Deposit Control Technology and Other Process Technologies, TWT® Effectively Meets the Needs Of Any Site Application.

Enhancing Water Quality, Improving HVAC Operating Efficiency and Equipment Life Cycle

Applications & Installation Options:

Filtration
Filters designed to trap various kinds of debris, dirt and organic particles that will enter your HVAC equipment and/or plumbing system.

TWT® Deposit Control Technology-Hard Water Conditioning & treatment
Chemical-Free conditioning & treatment system for the control of scale deposits, biofilm, corrosion, algae and colloids for all fluid based applications.

IonGuard Ionization-
Bacteria, Algae, Fungus Control, for HVAC cooling tower environments.

Ultra Violet Purification: Optional
As water passes through the UV chamber, UV light will attack and render harmless any bacterial, viral or spore contamination present in the treated water. "High intensity UV light destroys these contaminant's with a 99.9% or greater kill rate."

TWT "The Competitive Edge"
TWT® has the versatile, efficient, cost-effective methods to solve your water/fluid management problems end to end.
TWT® The Ultimate in Water Treatment & Conditioning.

In effect, a clean, corrosion-free delivery system is restored and maintained in an environmentally safe and chemical-free manner. The result is clean pipes and tubing with no biofilm and/or bacterial contamination

GO GREEN-SAVE GREEN!

TWT® TRIANGULARWAVE TECHNOLOGIES, INC.
Chemical-Free Water Treatment

TA208

Email:info@triangularwave.com • triwaveinc@aol.com • websites:www.triangularwave.com • www.twtwatertreatment.com

COOLING TOWER / CONDENSER / CHILLER

Filtration • TWT Deposit Control Technology • Purification End-to-End Treatment & Conditioning (Multi-Process)

Chemical-Free, products, systems, water treatment methods to meet the needs of any HVAC site and application. managing customer's expectations all the time. satisfaction guaranteed.
(Go Green-Save Green), The choice and options are up to you.

Unique, scalable systems for every need TWT® deposit control products & systems can be deployed in different modular configurations, scaling to fit your specific needs. The most effective fluid treatment systems utilize a variety of both removal and control methods depending upon the specific nature of the system/water being treated and its intended use. These combinations of techniques can be deployed to effectively solve your specific problems and can be designed to function together in a way that will enhance the effectiveness of each component in achieving the desired results.

Materials That Deposit on Equipment and Cause Water/Fluid Problems

Materials may be animal, vegetable, mineral, or corrosive water chemistry. The sources of the materials include: pollution; wind borne dirt, bacteria, and algae; chemical additives; and process components themselves. Some of the materials can grow; such as bacteria, algae, fungus, etc.

Treatment

The bottom line is that if the problem causing materials are controlled, then the problems are eliminated.

1. Filtration Systems:

Filters are designed to trap various kinds of debris, dirt and organic particles that will otherwise enter your equipment and/or plumbing system, restrict your water flow and create a breeding ground for bacteria.Filtration is the first line of defense for commercial, industrial facilities, where the source of water may be ponds, wells, streams or other water sources that have high exposure to contamination for airborne pollutants, surface run-off, agricultural or industrial waste or similar dangers. The first step in achieving clean water is to install a filtration device that effectively removes particulate matter and similar debris. Filtration is an important step in water treatment, filtration systems provide a bacteriostatic environment and are designed to remove, volatile organic chemicals, hydrogen sulfide and sulfur, herbicides, pesticides, chemical fertilizer residues, trihalomethanes and many other pollutants. The filtration units utilized in TWT systems are comprised of several media that remove harmful chemicals, metals, and toxins from the water as it passes through these layers.

Stainless Steel Filter Housings

The TWT Filter media can utilize a sediment filter, dual media filter, granular activated carbon filter, extruded carbon activated block filter, Silica, DE, or other filter media upon request. TWT filter system/media can be configured to trap particles of various micronic sizes.

High pressure, High capacity filters

Centrifugal separators, removes dense solids without replaceable filter elements. A viable alternative filtration system.

Regardless of the type of water treatment required, TWT has a filtration media suitable for your needs. Our product line can address a variety of water treatment problems commonly found in ground and well water supplies. Water treatment filtration media are manufactured to solve a broad range of treatment problems:

TWT® PATENTED DEPOSIT CONTROL TECHNOLOGY

Versatile Fluid Management System To Effectively Meet Any Application

2. Control Scale Deposits/Bacteria Corrosion/Algae/Colloids In All Fluid Based Systems

The TWT Deposit Control System is an advanced method for controlling scale and bio-fouling. It is applicable with once through and recirculating HVAC, Cooling Towers, Heat Exchangers, Boilers, Chillers, Spray Systems, Pumps, Induction Furnaces, and Process Cooling Systems, as well as agricultural, industrial processing, wastewater, and other fluid based systems.

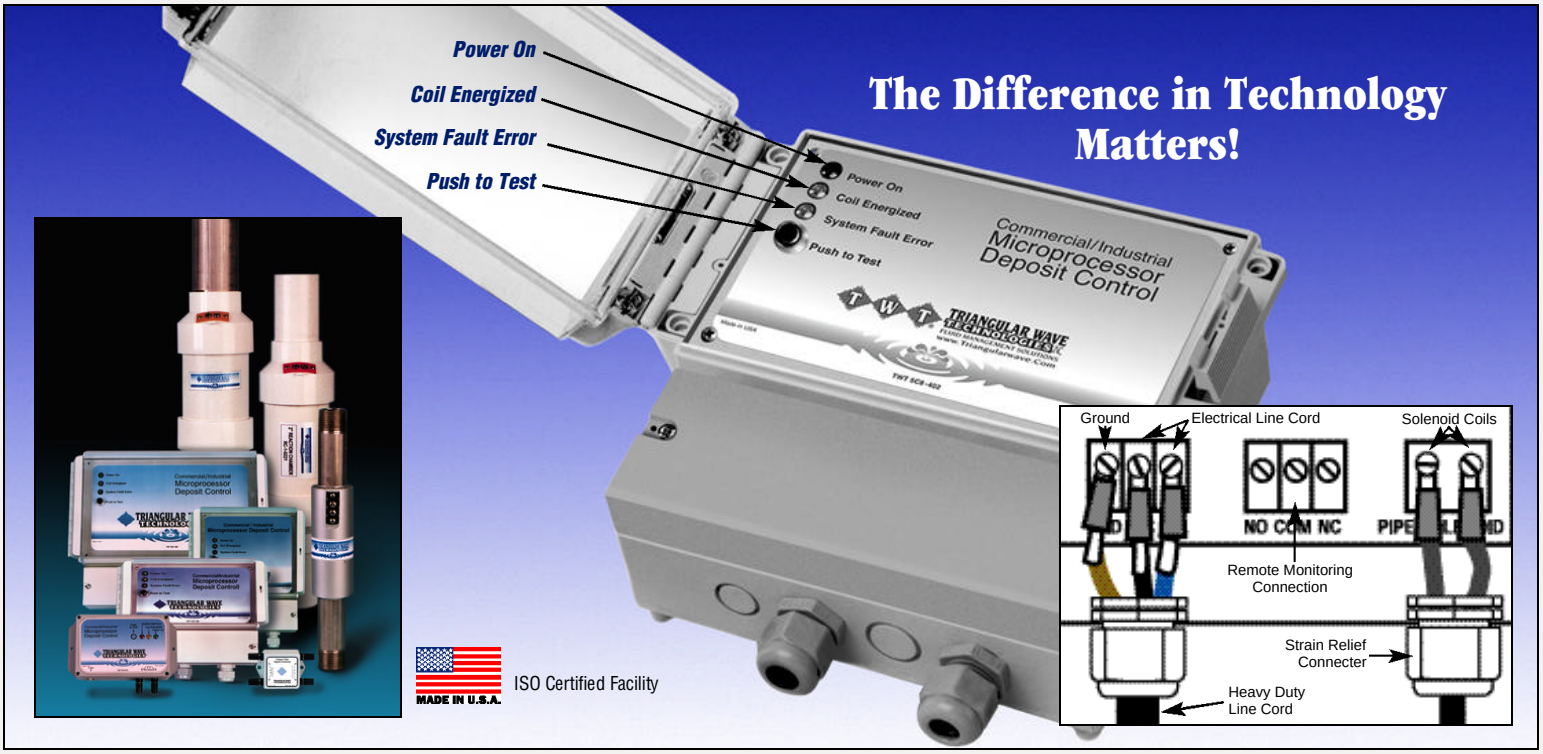
The electronic deposit control technology uses a signal coil that is wrapped around a pipe in the plumbing system being treated. The signal coil produces a varying magnetic field inside the pipe. The resulting induced, oscillating electric field provides the necessary molecular agitation for chemical-free scale prevention and removal.

- ***Polarity changes from positive to negative many thousands of times per second.***
- ***Frequency varies, the range of frequencies is wide enough to affect the water and the materials in the water.***
- ***Amplitude varies, this means that the water molecules and the materials in the water are being subjected to a wide range of field forces.***

The entire Triangularwave Signal is repeated many times each second. When the current reaches the solenoid, a constantly changing electromagnetic field is formed. That field induces a constantly changing voltage in the fluid. This process ensures proper fluid treatment results and increased operational efficiency.

The Triangularwave Deposit Control System uses a Current Source as the drive circuit to the pipe solenoid. A Current Source is the most reliable and strongest conditioning signal over a wide frequency range. Most waters have qualities that vary over time. Higher total dissolved solid concentration will cause greater impedance in the system. The TWT system, with a Current Source generator is able to sense the increased impedance and maintain the strong conditioning.

TWT® THE COMPETITIVE EDGE!



Brief Overview of Patented Triangularwave Technologies Deposit Control Tests

Electrical Conductivity:

The power of conducting, electricity, etc.

The evidence conclusively shows the higher reduction rate of electrical conductivity may indicate higher generation rate of $CaCO_3$ crystalline particles.

The TWT® electromagnetic technology (Microprocessor & solenoid coil) causes calcium ions to be generated in the solution.

These ions when combined with carbonate, results in the calcium carbonate (scale) with a negative charge. This is then repelled by the negative charge on the pipe walls.

pH Level/Percentage Hydrogen:

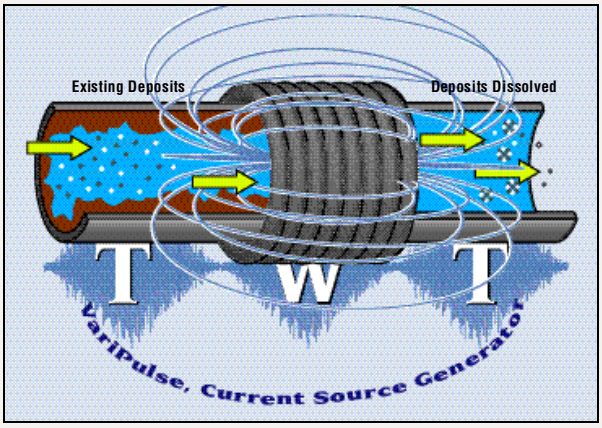
Measure of acidity or alkalinity of water

Recommended pH value for water treatment industry - 7.5 to 8.5

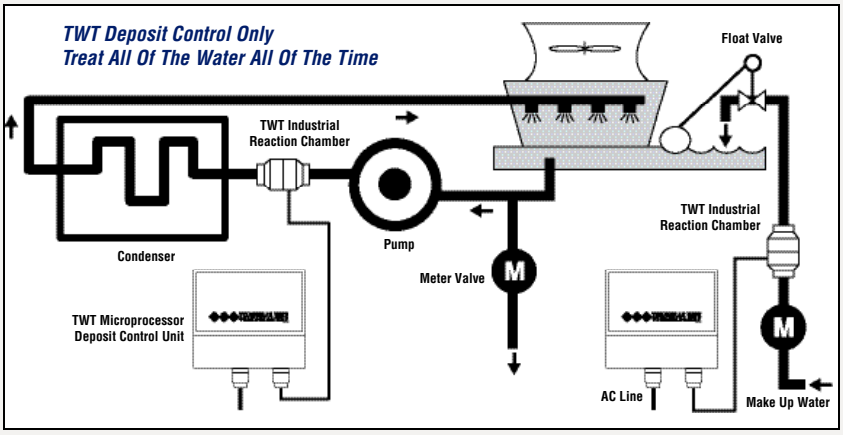
The pH value increased in the first 5 hours of testing. This phenomenon, once pH value reached to around 8, pH remained at almost constant value.

The calcium carbonate generated will tend to increase the pH of the solution, since most make up water is low in pH this increase is helpful as it moves the pH toward a neutral level.

Additional third party technical support materials and tests results available upon request



Electro-magnetic, complex modulated signal field provides the necessary molecular agitation for scale and bio-film prevention and removal.



Deposit control units, point-of-use HVAC recommended application.

TWT,Inc. offers a full range of products & systems designed to address HVAC water treatment problems end-to-end. Versatile, scalable products & systems can be deployed in different configurations to fit your industry specific flow requirements and other treatment needs.

THE DIFFERENCE IN TECHNOLOGY MATTERS!

HVAC TREATMENT OPTIONS (Side Stream and/or Inline)

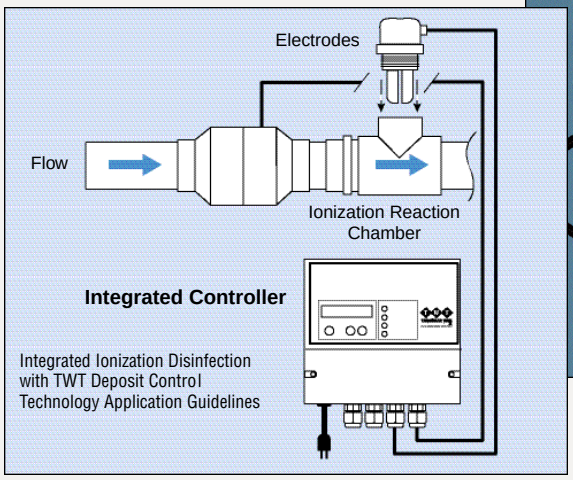
TWT IonGuard Disinfection, Purification with TWT Deposit Control Technology

3. IonGuard Purification System:

Control scale deposits, algae, bacteria and corrosion without the need for chemicals. Eliminate the bio-film that serves as a breeding ground for disease-causing bacteria, collecting in your piping, tubing and equipment.

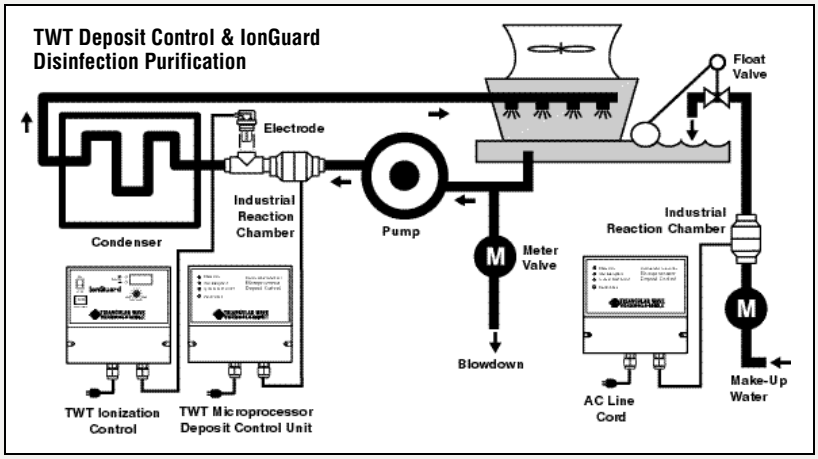
The IonGuard Purification System purifies water through a process called ionization. This process utilizes a low voltage direct current [DC] to place precise and minute amounts of copper and silver ions into water systems. Copper ions kill algae and silver ions kill bacteria. The IonGuard Purification System is an electrolytic copper/silver ion generator. The system units contain specially cast copper/silver alloy electrodes. These electrodes are mounted in a housing designed for easy access (HVAC & Pool Environments).

The TWT Deposit Control System will keep the IonGuard System electrodes free of scale and other deposits for more effective results. At the same time, the Deposit Control System will continue eliminating scale and biofilm deposits throughout the entire fluid based system.



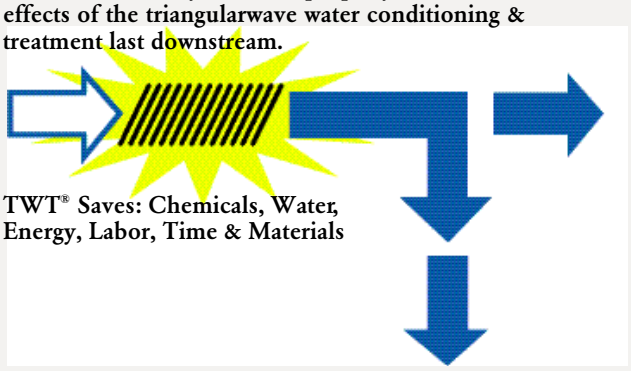
Three (3) Unit application & installation use ionization all of the time or only as needed.

TWT® Disinfection, Purification, Deposit Control Technology–ALL-IN-ONE PACKAGE SOLUTION

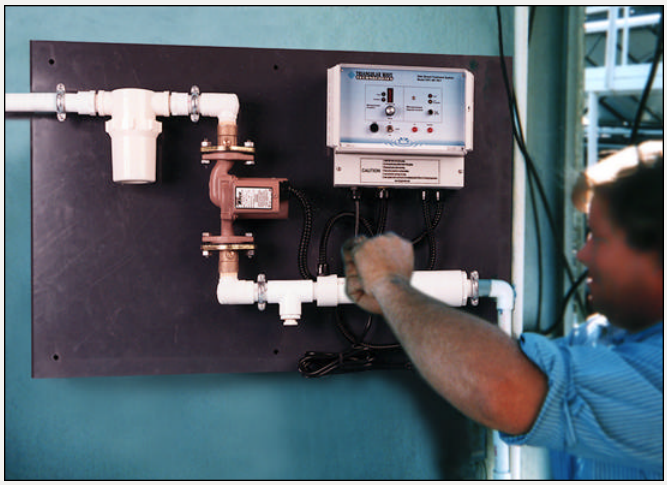


Control Scale Deposits • Bacteria • Corrosion • Algae and Colloids In All Fluid Based Systems

When the TWT systems are properly installed, the effects of the triangularwave water conditioning & treatment last downstream.



TWT® Saves: Chemicals, Water, Energy, Labor, Time & Materials



Side-Stream: Chemical-Free fluid conditioning, treatment for the HVAC industry–filtration, deposit control, ionization for recirculating fluid application.

The TWT Bypass Fluid Treatment System can be installed using stand-alone products or as a fully integrated factory-assembled & mounted treatment system, combining filtration, patented TWT Deposit Control and IonGuard purification technologies.

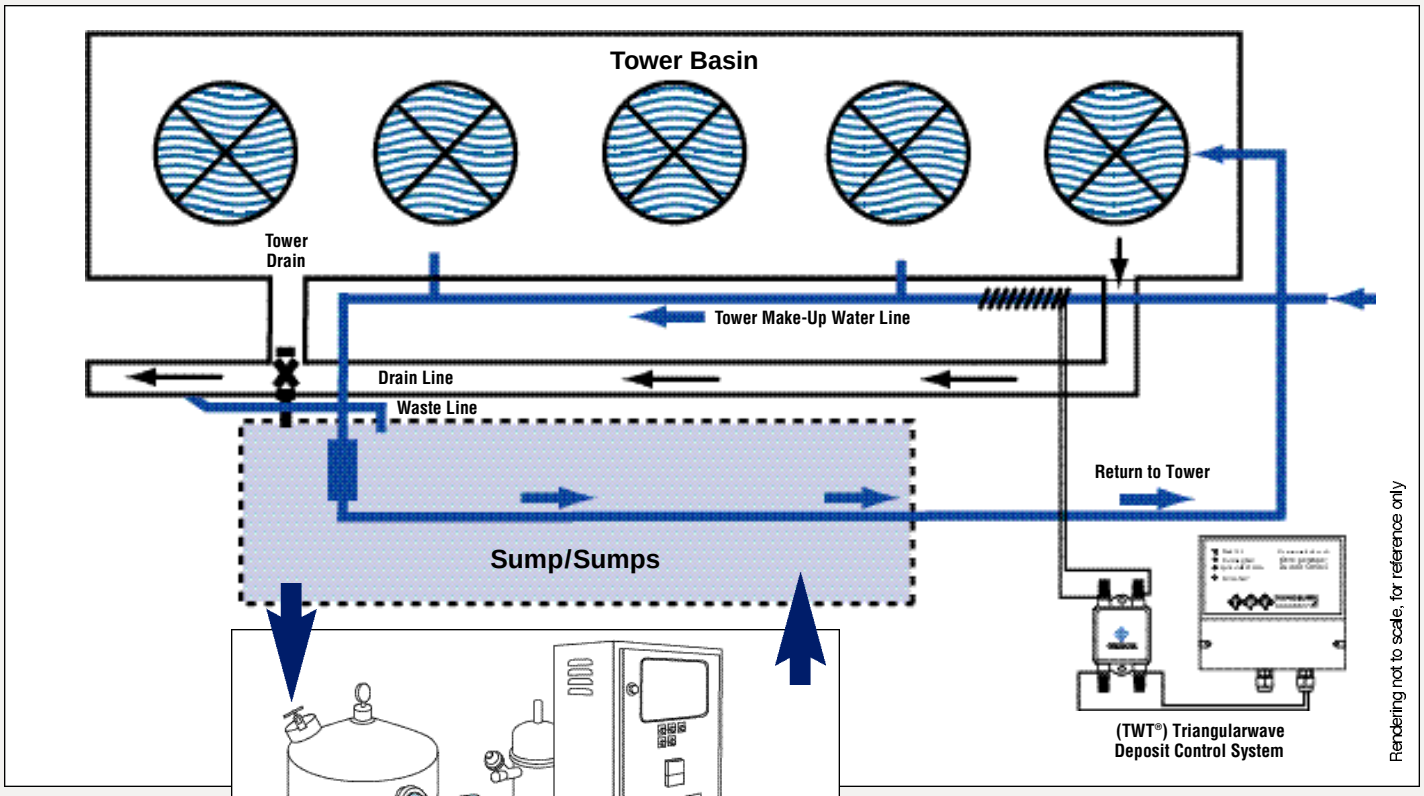
The System is designed to provide a practical answer to large pipe diameter and recirculating fluid treatment problems (as long as all of the sump water is treated, on average, two to three times per day).

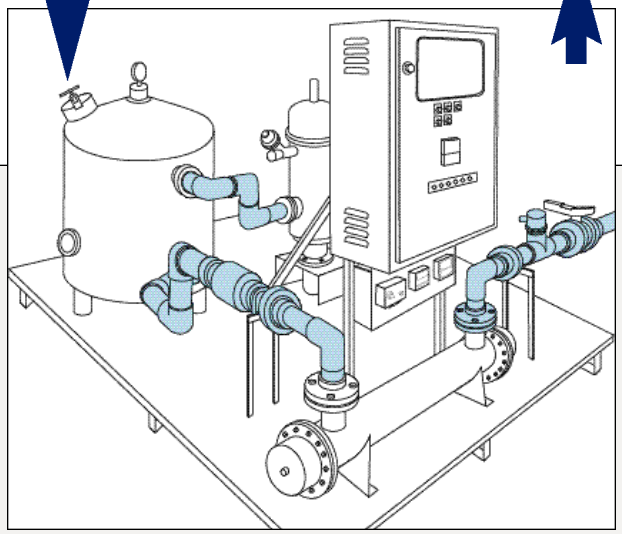
The Bypass system offers a much sought after solution at an economical price. Enhancing water quality, improving operating efficiency and equipment life cycle.

NO MATTER HOW TOUGH THE JOB..TWT® IS THE SOLUTION

TWCS systems can be customed designed to treat multi-sump (volume) applications

The TWT-TWCS series system are designed for use on non pressurized or open loop applications and installation (side-stream) systems. TWCS are designed to be piped/plumbed into and located near the sump of the cooling tower and/or towers equipment. When installed on cooling tower sump/sumps, discharge can be accomplished without effecting and/or interrupting the cooling tower operation. TWCS systems can be installed outdoors near cooling tower or indoors away from cooling tower. One TWCS system may control multiple cooling tower sumps on same level/roof area.





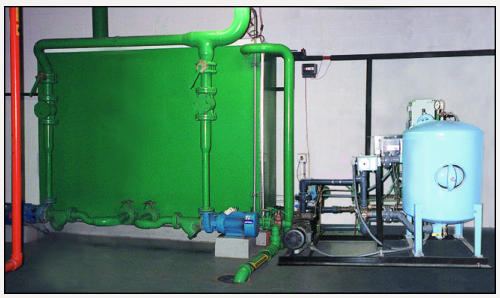
The TWT® water filtration, disinfection and purification systems are unique, compact, self-contained units (easy installation & operation).

Custom Engineered-Built to Order Only

(HVAC) Cooling Towers, Chillers, Condensers, (Chemical-Free) All-In-One: Water Conditioning and Treatment Systems. End-To-End Treatment Process Package Units.

Improve Operating Efficiency And Life Cycle Of Equipment

TWT Total water Control Systems All In one packaged unit Skid-mounted Multi-Process factory integrated All-In-One , filtration, deposit control, installed for HVAC treatment & conditioning.



Custom units build to suit, to meet required flow rate (GPM) and treatment requirements.

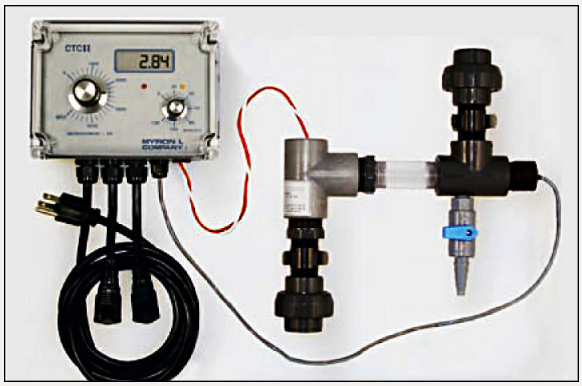
TWT Total Water Control System, TWCS series systems combine Technologically Advanced Water/Fluid Treatment Methods Consisting of: Triangularwave Deposit Control Technology, Automatic Backwashable Filtration, Ultra-Violet Disinfection, IonGuard Ionization and Purification, to improve the efficiency of HVAC, refrigeration, and industrial water cooling equipment (End-To-End Treatment).
Other (optional) processing equipment available upon request

Email:info@triangularwave.com • triwaveinc@aol.com • websites: www.triangularwave.com • www.twtwatertreatment.com

FEATURES & BENEFITS USING TWT TECHNOLOGY

TWT-CTDSCM-02 Conductivity / TDS Controller / Meter Kit

Designed Specifically for Treated Water - Excellent for Cooling Towers



OPTIONAL:

In-Line Conductivity/TDS Controller/Meter Kit –

- **Five (5) unit kit**
- **CTCIID-Controller**
- **FSM –** Flow switch & manifold
- **FSMP –** Mounting panel (horizontal or vertical mounting)
- **MBV** – Mini ball valve (sample port)
- **SQCO** – Quick-Connect, sensor cable

Other kits available upon request

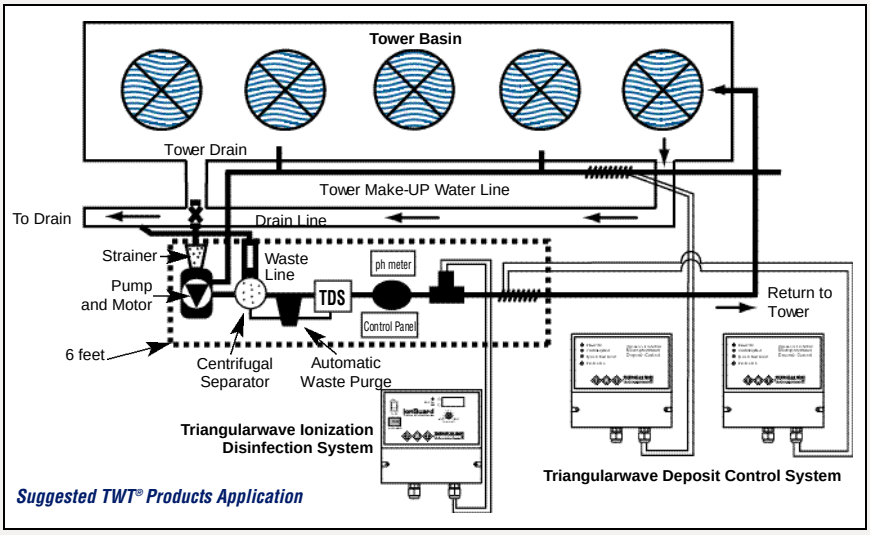
BENEFITS OF THE PATENTED TRIANGULARWAVE SYSTEM

Prevents Scale Build-up Throughout the Fluid System

Scale particles and colloids in the water receive a treatment that causes them to remain suspended and away from the surfaces of the equipment. The effect of the Triangularwave Systems lasts for many days;allowing the treatment to be continuously effective throughout the water system, when in operation.

Saves Energy

Energy savings of 2% to 30% are possible, because without scale pipe surfaces are less rough, pumps run more efficiently, and heat transfer is more efficient.



Suggested TWT® Products Application

Saves Water

Water that would typically bleed off is used more, and water savings could be up to 75% or more.

REDUCES CORROSION THROUGHOUT THE FLUID SYSTEM

Reduces biocorrosion by preventing the formation of biofilm on vessel surfaces where bacteria can attack the metal.With higher concentration ratios and higher TDS, the pH will be higher and there will be much less tendency for corrosion. The long lasting triangularwave Treatment effect helps control corrosion throughout the fluid system.

CONTROLS ALGAE AND BACTERIA

Bacteria and algae must attach to something before they can feed and reproduce. The triangularwave system keeps the bacteria, algae, and their food dispersed in the water, off of surfaces, and away from their biofilm breeding ground. Biofilm forming bacteria have a life span of about two to four hours. Therefore, biofilm forming bacteria will die too, because they are unable to attach to the equipment surfaces.

SHORT PAYBACK PERIOD

The combined reduction of water and chemical costs is enough to pay for the triangularwave System in as little as 9-18 months.

THE PAYBACK PERIOD CAN BE FURTHER REDUCED, BECAUSE:

- ***Labor costs for maintaining the chemical systems will be reduced.***
- ***Labor costs to clean the vessel surfaces will be reduced.***
- ***Costs to replace corroded parts will be reduced.***
- ***Hidden costs associated with production shutdown will be reduced.***
- ***Equipment life will be extended.***

The triangularwave system requires minimal maintenance. There is little electrical current flow in an electromagnetic system.

LIFE CYCLE COST SAVINGS

Cost savings continue long after the payback period is over. The triangularwave Deposit Control System will operate effectively for many years.

COMPATIBILITY AND VERSATILITY

The triangularwave deposit control system is compatible with all fluid based systems - residential, light commercial, commercial, and industrial. The triangularwave system solenoid coils and reaction chambers can be system integrated to deal with any system or construction configurations; and still provide the same maximum fluid conditioning

CONCLUSION

The TWT® Water Control System(s) protects cooling tower and process water systems by...

- Filtering the water • Controlling deposits of scale and biofilm
- Killing and preventing regrowth of bacteria and algae

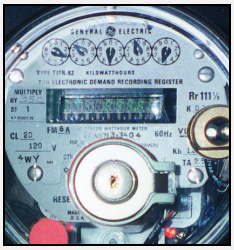
TWT® Water Control systems Multi-Process Conditioning, Disinfection & Purification Technology effectively...

- Increases Cooling Efficiency • Reduces Operating Cost
- Enhances Water Quality, Improves HVAC Operating Efficiency and Equipment Life Cycle • Saves: Chemicals, Water, Energy, Labor, Time & Materials

HVAC WATER RELATED PROBLEMS SOLVED EASILY! CONSERVE WATER • SAVE ENERGY • INCREASE COOLING EFFICIENCY

HARD DOLLARS - Chemicals, Water & Energy

- **Chemicals** - usage reductions of around 90% or more are typical.
- **Water in** - typically the concentration ratio can be increased from 2-3 to 6-8 and higher (while still reducing the chemical consumption), indicating an annual make-up water savings of 75% or more. Savings would include conservation incentives.
- **Water out** - volume of discharged water is reduced proportionately, along with the fees. Depending on actual chemical use reduction and local laws, further savings may be possible if blow down water can be sent directly to the sewer system.



- **Energy** - TWT has been found to deliver between 5 and 15 % energy savings when compared to a well functioning chemical system because the controller adapts to changes in water conditions with out operator intervention. Energy savings can be much higher (up to 40 %) vs. a poorly performing chemical system or no chemical system.

SOFT DOLLARS - Materials, Labor, Time, Safety

- Chemical handling and storage costs - reduced material and labor costs, freed-up storage space and cost allowance for increased safety (risk reduction). Reduction comparable to chemical cost reduction (up to 90 %).
- Maintenance, repair, replacement and downtime costs (chemical delivery system) - due to reduced usage rate. Reduction comparable to chemical cost reduction (up to 90 %).
- Maintenance, repair, replacement and downtime costs (tower and cooling system) - due in part to the adaptability described above under “Energy”. Cleaning of the system during shut down is also generally easier with TWT as any film on any surface can be easily removed with a soft cloth. Additionally, the lower level of chemicals in the system will make it safer for workers doing the cleaning (75-90 %).

LIFECYCLE SAVINGS

- Savings continue typically for 10 years or more from date of installation. Savings accelerate after the payback period and continue for the life of the system. Lifecycle savings are thus typically many times the cost of the TWT System.

HARD DOLLARS can be estimated from purchase records or water volume and prices from the previous year.

SOFT DOLLAR costs should be estimated based on the average of 10 years of data, or the age of the system if less than 10 years old, to smooth out the effect of infrequent repairs and replacements.

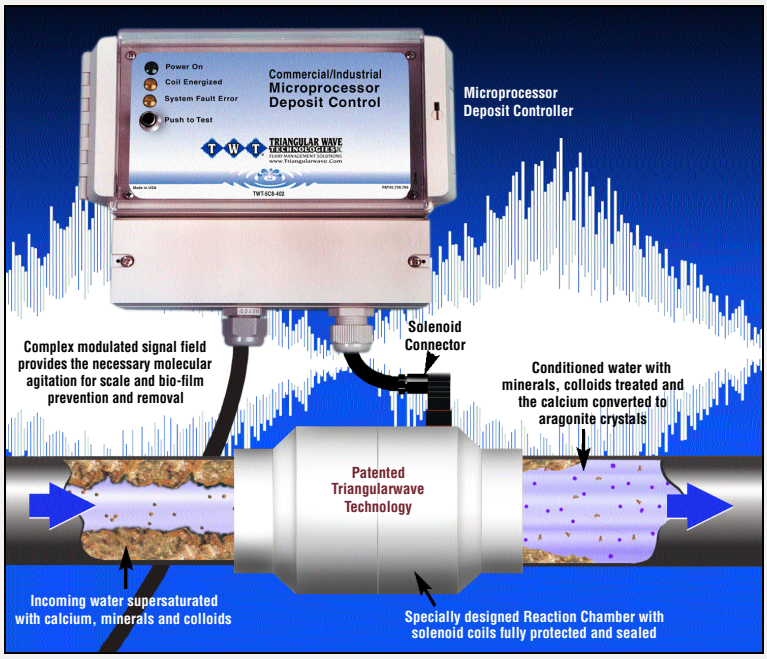
LIFECYCLE SAVINGS are calculated as the net present value of the sum of the annual savings over 10 years using a reasonable interest rate (e.g. prime plus 2 %).

PROTECTION FOR NEW EQUIPMENT Provides new equipment with the ability to enhance it’s features and benefits

TREATMENT FOR EXISTING EQUIPMENT Retrofit existing equipment to improve its operating efficiency and life cycle

TYPICAL PAYBACK is less than 2 years when considering ***Hard Dollars Only***.

The return on investment of a TWT Deposit Control System is undeniably significant from operational, economical, and safety points-of-view.



Tests conclusively demonstrates the ability of TWT® deposit control technology (hard water conditioning & treatment) to Inhibit & remove scale deposits in pipes, tubes and heat exchangers

Triangularwave (TWT®) Generator Surpasses Other Wave Form Generators

COMBINE PRODUCTS FOR ENHANCED RESULTS

Triangularwave Technologies, Inc. (TWT®)

Sensing Environmental Needs With Intelligent Solutions

The Difference in Technology Matters!

TWT offers a full range of chemical-free products & systems designed to address fluid problems wherever fluid flows. From TWT® patented deposit control technology to pre and post filtration needs, ionization, disinfection, and ultraviolet purification treatment and conditioning. Components and subsystems chosen from across the range of treatment methods can be combined in different configurations to provide custom solutions specific to your facility site or application.

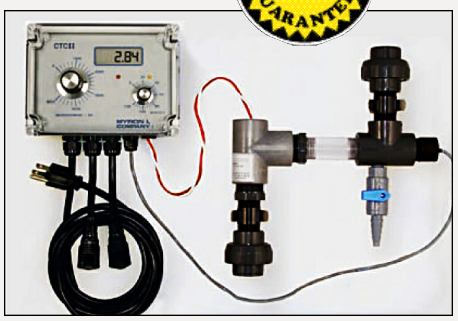
TWT also has extensive design, engineering, manufacturing, consulting and training ability to work with customers worldwide, and to use its products and/or systems in whole or component form, as a component assembly, or as an accessory to their primary product. Take advantage of our outstanding manufacturing and marketing expertise.

Let TWT custom design a product and/or system to meet your specific application (footprint), flow rate, system integration, and/or retro-fit program needs.

TWT offers several systems designed to treat and fit your individual & specific needs.
Point-of-Entry (P.O.E.) & Point-of-Use (P.O.U.)
***DON'T WAIT*...contact us today**
for information on how to purchase the system that works best for you!

SATISFACTION TWT GUARANTEED



Processing Components:

Filtration • Deposit Control Technology • Ionization Disinfection Purification • Monitoring and... other related equipment are sized, assembled, integrated and set up to meet HVAC site, treatment and customer specific requirements.

Remember, it's unwise to pay too much...but it's worse to pay to little. When you pay too much, you lose a little money...that's all. When you pay too little, you sometimes lose everything, because the item you purchased was incapable of meeting the need for it's intended use. The common law of business balance prohibits paying a little and getting a lot...it can't be done.

If you deal with the lowest bidder, it is well to add something for the risk you run and if you do that, you will have enough to pay for something better.

How many times have you purchased the lowest priced item and been disappointed when it failed to meet and perform to your expectations? And how many times have you purchased the best the industry has to offer and been well pleased for many years!

We sincerely thank you for your time, interest in our products, systems, consulting services, and look forward to being a valued part of your operation.

Conserve Water, Save Energy...Non-Chemical, Safe, Cost-Effective Treatment System.

CHEMICAL-FREE

TWT® The Ultimate in Alternative Energy, Water Treatment & Conditioning: *The Green Way*

T W T® TRIANGULARWAVE TECHNOLOGIES, INC.
Chemical-Free Water Treatment

Email:info@triangularwave.com • triwaveinc@aol.com • websites:www.triangularwave.com • www.twtwatertreatment.com