

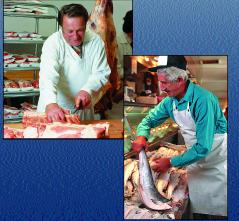
Sensing Industry Needs With Intelligent Solutions

Technologically Advanced Water/Fluid Treatment Methods for the Meat, Poultry and Related Processing Industries

TWT offers multiple water/fluid treatment systems that effectively treat flow rates from 8 GPM to 500 and greater GPM.

Chemical-Free Products &
Systems for the Commercial
& Industrial Environments.
Utilizing Filtration, Patented
Deposit Control, Disinfection &
Purification Technology.
Custom Engineered Modular Water
Treatment Systems, Designed to

Custom Engineered Modular Water Treatment Systems, Designed to Customer's Specifications Upon Request.





The BRS treatment systems and methods, guarantee reduced bacteria load in the processing equipment, this ensures a cleaner, safer product for processing and consumption.

The bacterial reduction systems are designed, engineered to integrate with existing treatment processes and equipment configurations.





Chemical-Free Water Conditioning, Treatment & Purification Systems



The Green Market Answer: Chemical-Free

- The system process is guaranteed to achieve a minimum two (2) log reduction for common bacterial contaminant's. The recirculating ability of the system will provide an enhanced kill rate.
- Multiple processing technologies, including filtration, TWT (hard water conditioning & treatment) patented deposit control technology, ultra-violet and disinfection & purification, may be combined for maximum effectiveness.
- The BRS bacterial reduction systems are ruggedly constructed for exceptional performance. The rugged self-contained design of this systems ensures that the systems will enjoy a long and reliable life cycle when properly cared for.
- The BRS systems guarantees a reduced bacterial load, this ensures a cleaner, safer product for processing & consumption.
- Self Contained Units
- Enhance Food Safety Efforts by Controlling Pathogens and Spoilage Organisms, Which May Effect and/or Enter the Processing **System.**• Enhance Shelf Life

- High Quality Final Output
- No Chemicals Used
- Environmentally Friendly
- Insures That Safe Products are Delivered to **Consumers**
- Cost Effective and Pays for Itself
- Saves salt and other chemical additive costs
- Saves equipment maintenance costs
- Saves chemical handling costs
- Saves electricity costs
- Produces healthier products
- Reduces mortality rates
- Produces higher profit margin
- Improves food conversion rates

Operational improvements well reduce and may even eliminate:

Recalls: Meat & Poultry Journal Rising Insurance Costs: Meat & Poultry

Iournal

Lots of Companies Provide Products and Systems...TWT, Inc. Senses **Environmental Needs with Intelligent Solutions!**

Triangularwave Technologies,Inc. (TWT®)

TWT® Chemical-Free • Multi-Stage Filtration • Electro-Magnetic Fluid Conditioning UV Disinfection/PurificationTechnology

Versatile Fluid
Management
Products & Systems
To Effectively Meet
The Needs Of Any
Industry &
Application

- Control Scale Deposits
- Bacteria
- Corrosion
- Algae
- Colloids

In All Fluid Based Systems

Potable Water, Process and Waste Water Treatment & Conditioning

PROTECTION FOR NEW EQUIPMENT

TWT provides new equipment with the ability to enhance the product features and benefits

TREATMENT FOR EXISTING EQUIPMENT

Retrofit existing equipment to improve its operating efficiency and life cycle

CUSTOM DESIGN

Let TWT, Inc. custom design a fluid management system to meet any industry specific application

- Commercial
- Industrial

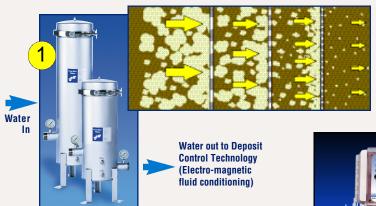
Water lines in the commercial & industrial sectors, where clean water is essential, commonly allow a contaminated interior environment conducive to the growth of bacteria, protozoa, and fungi. These initially arrive in small numbers through wells and public waterline plumbing systems. Over time, these microorganisms bind to the sides of your water pipes, tubing and equipment forming biofilm. As water flows through the pipes and tubes, the biofilm sheds microorganisms and bacterial endotoxins into the water, leading to these harmful conditions.

Multi-Process Filtration, Conditioning, Treatment and Purification Technology

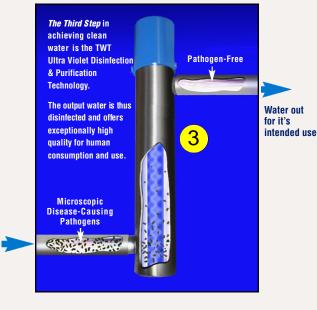
Optional: Filtration, TWT Patented Deposit Control Technology. Suggested product integration for enhanced results if required!

Pre-Filtration Options:

TWT Deposit Control, UV sterilizer units can be combined with different pre-filtration solutions, such as multi-staged filtration in stainless steel filter housings, or in Polypropylene Jumbo filters.

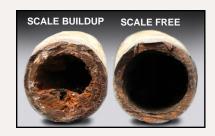


The First Step in achieving clean water is the staged filtration system that effectively removes particulate matter and similar debris.





The Second Step in achieving clean water is the TWT Chemical-Free Deposit Control Technology (hard water problems solved easily)



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

Multi-Stage Design = Step 1. Filtration

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 or streams that have high exposure to contamination from 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, especially for water intended for human consumption. 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.



removes particulate matter and similar

The filtration units utilized in TWT systems are comprised of several filter types and media that remove harmful chemicals, metals, and toxins from the water as it passes through these layers. Filters used in staged filter housings are configured as illustrated on system trade ads. Upon request if needed other filter mediums and filters used in system can be determined by a water quality analysis. If fluid conditions require additional micronic particle trapping for enhanced results, filters are available in various micronic sizes providing flexibility & adaptability to meet the needs of all fluid conditions & applications.

Filters used in system(s)

Sediment: Reduction/removal

Carbon: Taste, odor, chlorine and organic chemicals reduction/removal

GAC: Granulated activated carbon for taste, odor, organic chemicals

and chlorine reduction/removal

Note: Post filtration optional, available upon request.

Step 2. TWT® Patented Deposit Control Technology

Sources of Water

Potable water primarily comes from two sources- the bodies of water on the earth's surface and the subterranean wells which gather groundwater after it is filtered through the top layers of the earth's strata. After the groundwater passes through the uppermost layers of the earth's surface, it contains carbon-dioxide (CO₂), a carbonic acid. In the lower strata of the earth, the carbonic enriched water dissolves lime

(CaCO₃) from the subterranean rock and converts it to calciumhydrogen carbonate. The calcium-hydrogen carbonate is the source of lime deposits and encrustations (scale) which form in water systems.

Hardness in Water

Regardless of the source of drinking water, water typically contains carbon-dioxide (CO2) and the earth's alkalines, such as calcium and magnesium. The total hardness of water is determined by the sum calciumhydrogen carbonate, magnesium-hydrogen carbonate and the non-carbonate starches which include calcium and magnesium component solutions. Consequently, the water "hardness" is dependent upon the amount of lime in the water. There are several methods of preventing lime deposit formation (scale and encrustation) in water systems.

The TWT® method for preventing the formation of lime deposits uses an electronic deposit controller, (Triangularwave System) which generates The Second Step in achieving clean water is the TWT Chemical-Free an electronically modulated frequency, an amplified triangulated wave Deposit Control Technology (hard water problems solved easily)

form, which is then oscillated to change the separation characteristics of calcium and carbonates before they enter the water system. That immediately neutralizes the hardness, and functionally "softens" the water. The process is purely physical as it uses no chemical additives. The basic component of the TWT systems is the deposit controller.

continued next page

deposit control continued

It is comprised of a microprocessor, solenoid coil wrap and/or a reaction chamber. The microprocessor is a patented controller that functions like a computer to relay a continuous electrical power supply to the solenoid coil and/or reaction chamber. The reaction chamber is plumbed into the main water in-take line and/or just before each piece of vital processing equipment, and provides a factory wrapped wire coil forming a solenoid. The solenoid conveys the triangular wave signal at the appropriate power level (as allowed by the model chosen) to the water passing through the chamber. This signal constantly changes the polarity, frequency and amplitude of the current entering the water. This triangularwave treatment produces several benefits. It increases the capability of water to hydrate scale ions and other colloidal particles.

In effect, the surface charge of the hydrogen molecules is enhanced and the water is made "wetter". This "hydrated" water can dissolve unwanted particles, suspend them in solution and allow them to be easily filtered out or flushed from the system. Accordingly, the mineral and biological particles that cause scale, deposits and corrosion are dissolved and washed away. This means that the breeding environments for bacteria, such as bio-film and corrosion, are eliminated.

The agitation created in the reaction chamber also disrupts the conditions essential for the normal reproduction of bacteria and they die, thus allowing them to be harmlessly flushed out of the system. If left untreated, scale build-up inside the reaction chamber and on the quartz sleeves containing the UV lamps may rapidly diminish the UV disinfection effectiveness by reducing the amount of UV light which is absorbed into the water stream. The TWT Deposit Control System will further condition the treated water stream so as to prevent this scale build up inside the UV reaction chamber, helping to maintain maximum UV life cycle and penetration into the water stream. TWT deposit control technology (treated fluid) maintains the ability to control deposits throughout the system with down-stream residual value.

Step 3. Ultra-Violet Disinfection/Purification:

Ultraviolet disinfection systems are mysterious to many people - how can "light" kill bacteria? But the truth is, it can. Ultraviolet (UV) technology has been around for over 50 years, and its effectiveness has been well documented, both scientifically and commercially. It is nature's own disinfection/purification method. With consumers becoming more concerned about chlorine and other chemical contamination of drinking water, more dealers are prescribing the ultraviolet solution as suitable for both small flow residential applications as well as large flow commercial projects.

Ultraviolet is a means of killing or rendering harmless microorganisms in a dedicated environment. These microorganisms can range from bacteria and viruses to algae and protozoa. UV disinfection is used in air and water purification, sewage treatment, protection of food and beverages and many other disinfection and sterilization applications. A major advantage of UV treatment is that it is

capable of disinfecting water faster than chlorine without cumbersome retention tanks and harmful chemicals. UV treatment systems are also extremely cost efficient!

One of the most common uses of ultraviolet sterilization is the disinfection of domestic water supplies due to contaminated wells. Coupled with appropriate pre-treatment equipment, UV provides an economical, efficient and user-friendly means of producing potable water.

The following list shows a few more areas where ultraviolet technology is currently in use: surface water, groundwater, cisterns, breweries, hospitals, restaurants, vending, cosmetics, bakeries, schools, boiler feed water, laboratories, wineries, dairies, farms, hydroponics, spas, canneries, food products, distilleries, fish hatcheries, water softeners, bottled water plants, pharmaceuticals, mortgage approvals, electronics, aquaria, boats and RV's, printing, buffer processing, petro-chemical, photography and preand post-reverse osmosis.

The UV disinfection technology used in the system provides safe process and potable water, free of disease-causing pathogens. 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" based on the multi-process technology provided in the system. The output water is thus disinfected and offers exceptionally high quality for human consumption and use.



TWT® Water Filtration, Disinfection & Purification Systems. Integrated Processing Technology To Provide Water. The Way Nature Intended It!

(P.O.E. Point-of-Entry or P.O.U. Point-of-Use) Application & Installation

TWT-SMD-50-JCH90 50 GPM 48" W x 52"H x 63"D 270lbs

All-In-One Water Treatment: Filtration and UV Disinfection

- Stainless Steel Filter Housing w/Jumbo 5 Micron Sediment Filter Cartridge and Pressure Gauge • Stainless Steel Multi-Cartridge Filer Housing w/4 Carbon Cartridges
- UV5000 Sterilizer 316 SS
- NEMA IV Control Panel UV Monitor w/2 Sensors Solenoid Valves
- Manual Shut-Off Valves Skid Mounted on 304 SS Two (2) UV Lamps Required *Piping*: 2" In/Out of system

Optional: TWT® Deposit Control Technology (Hard water conditioning & treatment)

Custom Engineered System Built to Order Only.



TWT-SMD50P-JCH90: 50 GPM 48" W x 55"H x 63"D

UV Disinfection for Food Processing - Single Stage Filtration

- Single Staged Filtration UV Disinfection On Board Pump
- NEMA IV Control Panel Sanitary Fittings and Pipes
- Manual Shut-Off Valves Mounted on 304 SS Skid Two (2) UV Lamps Required *Piping:* 2" In/Out of system

Optional: TWT® Deposit Control Technology (Hard water conditioning & treatment)

Custom Engineered System Built to Order Only.

TWT-SMD50-BBBX2 50 GPM 42" W x 42"H x 62"D 270lbs

All-In-One Water Treatment: Micro Filtration and UV Disinfection

- Dual Filtration Stages (Sediment 20 and 5 Micron) in Polypropylene Filter Housings
- UV Disinfection with Monitoring System Solenoid Valve
- All Electronics inside NEMA IV Control Panel Manual Shut-Off Valves
- Mounted on 304 SS Skid Two (2) UV Lamps Required

Optional: TWT® Deposit Control Technology (Hard water conditioning & treatment)

Piping: 2" In/Out of system

Custom Engineered System Built to Order Only.

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





Visit www.twtwatertreatment.com to see

our complete product catalog

TWT® Water Filtration, Disinfection & Purification Systems. Integrated Processing Technology To Provide Pure Water. The Way Nature Intended It!

TWT-SYS-5100M 100 GPM 32" W x 48"H x 63"D 210 lbs

- Rated Flow: 378 liters per minute (100 GPM) 22710 litres/hour, 545,040 litres/day (6000 gallons/hour, 144,000 gallons/day)
- UV Dose 61mJ/cm² (61,000uwsec/cm²) @95%T
- Electrical: 110-20V / 60 Hz or 220-30V / 50 Hz includes surge protector power packs
- · Approx Power Usage: 440 W
- Maximum Operating Temp: 37° C (98.6° F)
- Maximum Operating Pressure: 125 psi 8.6 bar (tested to 500 psi)
- Plumbing: 3" MNPT in/out
- Chamber Material: 304L Stainless Steel (316L available)
- Additional Features (optional) UV-Monitor, Solenoid Valve, Filtration and/or Deposit Control Technology • Four (4) UV Lamps Required

Optional: TWT® Deposit Control Technology (Hard water conditioning & treatment)

Piping: 2" MNPT in/Out of system- 3" available upon request (Flanges optional)

Custom Engineered System Built to Order Only.





TWT-SMD-1008* 100 GPM 72" W x 52"H x 34"D ** lbs

Compact, Self-Contained, Skid-Mounted Fluid Management System

- 2-Stage Filtration TWT® Deposit Control Technology
- Ultra Violet Disinfection & Purification Four (4) UV Lamps Required *Piping:* 2" In/Out of system

Custom Engineered System Built to Order Only.

TWT-SMD-100P-BBBX3 100 GPM 36" W x 50"H x 53"D 590 lbs

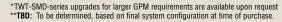
All-In-One Water Treatment: Filtration and UV Disinfection Management System

- Triple Filtration Stages (Sediment 50, 20 and 5 Micron)
- Filter Housings with Pressure Gauges UV Disinfection On Board Pump
- All Electronics inside NEMA IV Control Panel
 Mounted on Stainless Steel Skid
- Four (04) UV Lamps Required

Optional: TWT® Deposit Control Technology (Hard water conditioning & treatment)

Piping: 2" In/Out of system

Custom Engineered System Built to Order Only.



Factory assembled and skid mounted on stainless steel skid. 3" line in/out of system. Filter medium and micronic sizes used in staged filter housings are configured as illustrated. Other filter medium andmicronic sizes are available and are based upon input water quality and customer and/or industry specific treatment requirements (medium TBT). Micronic sizes of filters are generally 20, 30, 50 microns, unless otherwise specified



TWT® Water Filtration, Disinfection & Purification Systems. Integrated Processing Technology To Provide Pure Water. The Way Nature Intended It!

TWT-SMD-100-JCHX1 100 GPM 52" W x 52"H x 65"D 270 lbs

All-In-One Water Treatment: Filtration and UV Disinfection

- Filter Housing 316 SS Jumbo 5 Micron Sediment Filter Cartridge and Pressure Gauges
- Dual UV5000 Sterilizer 316 SS 2 UV Monitors w/4 Sensors
- NEMA IV Control Panel Solenoid Valves
- Manual Shut-Off Valves FNPT In/Out Ports-Flanges Available
- Skid Mounted on 304 SS Four (4) UV Lamps Required

Optional: TWT® Deposit Control Technology (Hard water conditioning & treatment)

Piping: 2" In/Out of system

Custom Engineered System Built to Order Only.





TWT-SMD-150-UV3 150 GPM 52" W x 52"H x 65"D 270 lbs

UV Disinfection

- •Triple UV-5000 Sterilizer 316 SS in Parallel Manifold
- Power Bar w/Surge Protector MNPT In/Out Ports, Flange Optional
- Rack Mounted Six (6) UV Lamps Required

Piping: 3" In/Out of system

Optional: TWT® Deposit Control Technology (Hard water conditioning & treatment)

Custom Orders: Larger pipe size (GPM) applications available upon request

Custom Engineered System Built to Order Only.

TWT-SMD-200+4 200 GPM 84"W X 72"H X 60"D *800 lbs

Compact, Self-Contained, Skid-Mounted Fluid Management System

- Staged Filtration
- TWT® Deposit Control Technology 7 Lamp Ultra Violet Disinfection & Purification • Stainless Steel skid

Piping: 3" In/Out of system

Micronic sizes of filters are generally 20, 30, 50 microns, unless otherwise

BRS Systems Factory assembled and skid mounted on stainless steel skid. 3" line in/out of system. Filter medium and micronic sizes used in staged filter housings are configured as illustrated. Other filter medium andmicronic sizes are available and are based upon input water quality and customer and/or industry specific treatment requirements (medium TBT). Micronic sizes of filters are generally 20, 30, 50 microns, unless otherwise specified

*TWT-SMD-series upgrades for larger GPM requirements are available upon requestspecified.

Custom Engineered System Built to Order Only

BRS Specifications: Factory assembled and skid mounted on stainless steel skid (Size & weight may vary according to custom design). Filter medium and micronic sizes used in staged filter housings are configured as illustrated. Other filter medium andmicronic sizes are available and are based upon input water quality and customer and/or industry specific treatment requirements (medium TBT).

Please Note: System engineering design, weight, size and system component assembly can vary based on TWT engineering review.

Pumps, piping, fittings, valves, and other material needed to and from system owners responsibility. The rugged self-contained design of this system ensures that the system will enjoy a long and reliable lifecycle when properly cared for.



Installation: Licensed plumber and/or contractor is recommended. Must have enough room on all sides for filters, UV replacement & maintenance

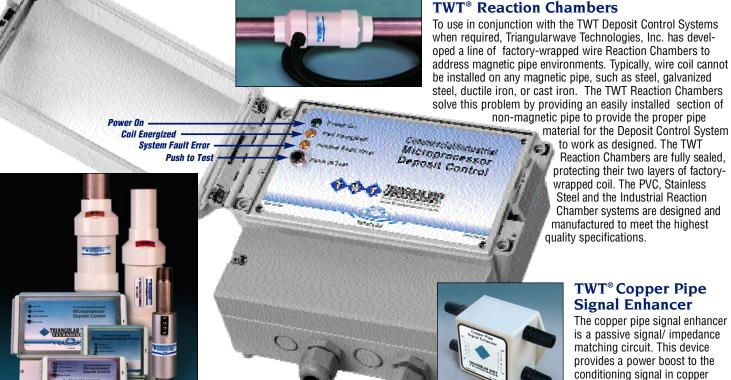
UV lamp replacement: To ensure adequate disinfection/purification of water line contamination, replace UV lamps every 12 months (or sooner depending on water use, quality and conditions).

Sediment and Carbon Cartridge Replacement: Generally twice a year, depending on water use, quality, & conditions.

Note: TWT Inc. recommends that an initial supply of replacement products e.g., filters, UV lamps etc. be stored at owners facility at all times, that will insure uninterrupted service and treatment.

Hard Water Problems Solved Easily-Chemical-Free

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



Efficient Cost Effective & Reliable

TWT[®] Copper Pipe

Signal Enhancer

The copper pipe signal enhancer is a passive signal/impedance matching circuit. This device provides a power boost to the conditioning signal in copper pipes (for copper pipe applications only).



HARD DOLLARS SAVINGS-Chemicals, Salts Water & Energy

- Usage reductions of around 90% or more are typical.
- Energy systems have 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 without operator intervention. Energy savings can be much higher (up to 40 %) vs. a poorly performing chemical system or no chemical system at all.

SOFT DOLLARS - Materials, Labor, Time, Safety

- Chemical, salt 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 & salt delivery systems) - due to reduced usage rate. Reduction comparable to chemical and salt cost reduction (up to 90 %).
- · Maintenance, repair, replacement and downtime costs (plumbing system,) due in part to the adaptability described above under "Energy" Cleaning of the system and/or during shut down is also generally easier with TWT technology, 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 DOLLARS

• 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 %)

TYPICAL PAYBACK is less than 2 years when considering HARD DOLLARS ONLY



The Return On Investment of a TWT System is Undeniably Significant From Operational, Economical, and Safety Points-Of-View.

TWT offers a full range of 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.

At TWT, Inc. our unique capabilities and custom design expertise have and continue to successfully solve a wide variety of problems for a wide variety of customers world wide commercial, industrial, and residential.

- FROM IDEAS TO FINAL PRODUCTION
- EFFICIENT ENGINEERING DESIGN TEAM

TWT products make sense from operational, economic, and safety point of view. Ownership of the TWT System will afford you and our customers significant savings over a short period of time and even greater savings over the life of the equipment.

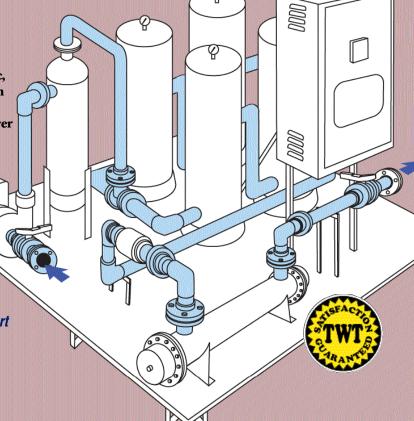
Contact your Distributor or TWT today (info@Triangularwave.com) for information on what TWT system will meet your specific application needs and/or visit Triangularwave Technologies, Inc. Comprehensive Websites. The Valuable Technical Resource For All Involved In Water And Fluid Management. www.Triangularwave.com • twtwatertreatment.com

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

Bringing You The Best in Fluid Management Solutions.

 STATE-OF-THE-ART PRODUCTION EQUIPMENT AND FACILITY TO MEET THE EVER CHALLENGING PRODUCTION REQUIREMENTS

- TECHNICAL AND TEST DEPARTMENT WITH OUTSTANDING QUALITY CONTROL GUARANTEED
- ECONOMICAL & COST EFFECTIVE
- ENERGY & WATER SAVINGS
- IN ORDER TO ENSURE THE GREATEST LEVEL OF PERFORM-ANCE AND SATISFACTION WORKING WITH TWT PRODUCTS AND SYSTEMS, WE RECOMMEND THAT YOU CONTACT OUR ENGINEERING STAFF, WHO WILL BE PLEASED TO WORK CLOSELY WITH YOU TO DETERMINE THE OPTIMAL TREAT-MENT REQUIREMENTS (UV Dosage, GPM and/or System Integration) INSTALLATION AND APPLICATION FOR YOUR INDUSTRY SPECIFIC PROJECT.
- ENGINEERED MULTI-PROCESS MODULAR WATER TREATMENT SYSTEMS, DESIGNED TO CUSTOMER'S SPECIFICATIONS.



TWI® The Ultimate in Water Treatment & Conditioning

The Green Way

