Triangularwave Technologies, Inc. (TWT®)

Water&Fluid Management Solutions

Bacteria & Biofilm Control for the Home, Office, Medical, Dental and Laboratory Environments

Provide Your Customers With Technologically Advanced Modular Water Treatment Systems. Also available for the building industry, residential, restaurant, childcare, corrections, aviation, convenience store, telecommunications markets, marine industry, rainwater harvesting, agriculture/irrigation, remote areas, residential, commercial and industrial facilities worldwide. Chemical-Free water treatment, conditioning, purification systems.

Building A Better Way!

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

Eliminate the biofilm that serves as a breeding ground for disease causing bacteria, collecting in your water-lines, tubing and equipment.

TWT® All-In-One Multi-Process Filtration, Disinfection & Purification Systems.

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

TWT® "The Competitive Edge"

Go Green-Save Green

TRIANGULARWAVE TECHNOLOGIES, INC.
Chemical-Free Water Treatment

ATS110

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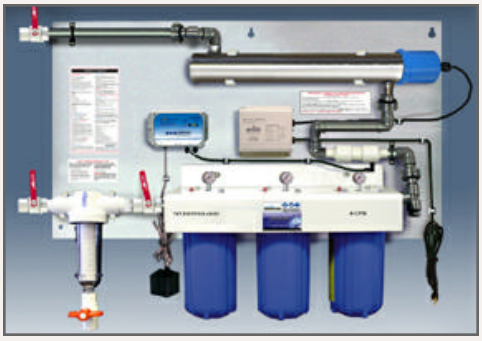
TWT All-In-One Integrated Filtration, Disinfection & Purification Systems

TWT-POEPOUV-604SC2 (1-2 GPM)

Specifications:

Applies all the needed elements for maximum fluid protection, management, and peace of mind in one simple packaged solution.Technologically advanced method for water management. Staged Filtration: Sediment, Carbon and GAC. Filters are interchangeable allowing you to meet your specific water treatment needs at all times). TWT® Microprocessor Deposit Controller, Reaction Chamber, and UV Disinfection / Purification units are combined to provide a start-to-finish answer to simplified prevention, treatment and management of water contamination dangers. System components integrated and shipped ready to put in place, plumbed into water line (source water), and operate.

Factory assembled and mounted, Pipe size: 1/2" In/Out Unit size: Approx 42"W X 28"H X 10"D • Approx weight 42 lbs. All TWT systems are shipped with 120 VAC/60Hz current source. Other current source available upon request. Must specify current source requirements when placing order.



TWT-POEPOUV-604SC4 (4 GPM)

Specifications:

Applies all the needed elements for maximum fluid protection, management, and peace of mind in one simple packaged solution.Technologically advanced method for water management. Staged Filtration: Sediment, Carbon and GAC. Filters are interchangeable allowing you to meet your specific water treatment needs at all times). TWT® Microprocessor Deposit Controller, Reaction Chamber, and UV Disinfection /Purification units are combined to provide a start-to-finish answer to simplified prevention, treatment and management of water contamination dangers. System components are integrated and shipped ready to put in place, plumbed into water line (source water), and operate.

Factory assembled and mounted, Pipe size: 3/4" In/Out Unit size: Approx 44"W X 31"H X 10"D • Approx weight 52 lbs. All TWT systems are shipped with 120 VAC/60Hz current source. Other current source available upon request. Must specify current source requirements when placing order

TWT-MD-1003SC (8 GPM)

Specifications:

Applies all the needed elements for maximum fluid protection, management, and peace of mind in one simple packaged solution.Technologically advanced method for water management. Staged Filtration: Sediment, carbon and GAC. Filters are interchangeable allowing you to meet your specific water treatment needs at all times). TWT® Microprocessor Deposit Controller, Reaction Chamber, and UV Disinfection /Purification units are combined to provide a start-to-finish answer to simplified prevention, treatment and management of water contamination dangers. System components are integrated and shipped ready to put in place, plumbed into water line (source water), and operate. Factory assembled and mounted, Pipe size: 3/4" In/Out Unit size: Approx 49"W X 31"H X 10"D • Approx weight 80 lbs. All TWT systems are shipped with 120 VAC/60Hz current source. Other current source available upon request. Must specify current source requirements when placing order.

Optional: Stainless steel union and piping, in and out of integrated systems available upon request

TWT-MD-1004SC (12 GPM)

Specifications:

Applies all the needed elements for maximum fluid protection, management, and peace of mind in one simple packaged solution.Technologically advanced method for water management. Staged Filtration: Sediment, Carbon and GAC. *Filters are interchangeable allowing you to meet your specific water treatment needs at all times. TWT® Microprocessor Deposit Controller, Reaction Chamber, and UV Disinfection /Purification units are combined to provide a start-to-finish answer to simplified prevention, treatment and management of water contamination dangers. System components are integrated and shipped ready to put in place, plumbed into water line (source water), and operate. Factory assembled and mounted on stainless steel frame with mounting brackets and/or holes provided, Size Approx. 40"W X 43"H X 8"D, Weight Approx 85 lbs. (may vary according to custom design). Pipe size 1" in/out All electrical, piping, fittings, pumps, and materials (equipment) used in the system can be engineered and system integrated to conform to requirement of the submitted RFQ.

TWT-MD-1005SC‡ (15 GPM)

Specifications:

Factory assembled and mounted on stainless steel frame with mounting brackets and/or holes provided, Size Approx: 58"W X 49"H X 8"D, Weight Approx: 122 lbs. (may vary according to custom design requirements). 1" in/out. Staged Filtration: Sediment, Carbon and GAC. Filters are interchangeable allowing you to meet your specific water treatment needs at all times. *Other filter mediums andmicronic sizes are available and are based upon input water quality and customer and/or industry specific treatment requirements (medium TBT). All electrical, piping, fittings, pumps, and materials (equipment) used in the system can be engineered and system integrated to conform to requirement of the submitted RFQ.

‡ TWT-Self Cleaning sediment pre-filter available upon request

Optional: Remote sensor for above systems available upon request

*Upon request if needed other filter mediums used in 3-stage filter housings can be determined by a water quality analysis (purchaser responsibility). Micronic sizes of filters are generally 10, 20 microns, unless otherwise specified.

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TWT All-In-One Integrated Filtration, Disinfection & Purification Systems

TWT-MD-1006 (30 GPM)

Specifications:

Factory assembled and mounted on stainless steel frame with mounting brackets and/or holes provided, Size Approx. 58"W X 49"H X 8"D, Weight Approx: 141 lbs. (may vary according to custom design requirements). $1\frac{1}{2}$" in/out. Filter mediums and micronic sizes used in 3-stage filter housings is configured as illustrated above. Other filter mediums andmicronic sizes are available and are based upon input water quality and customer and/or industry specific treatment requirements (medium TBT). All electrical, piping, fittings, pumps, and materials (equipment) used in the system can be engineered and system integrated to conform to requirement of the submitted RFQ.

TWT-MD-1008 (100 GPM)

Specifications:

Factory assembled and skid mounted on stainless steel frame, Size approx. 72'' W X 52" H X 34" D, weight TBD (may vary according to custom design). 2'' in/out. Filter mediums and micronic sizes used in 3-stage filter housings as illustrated (see step 1 on page 6). Other filter mediums and micronic sizes (filters are generally 10 & 20 microns) are available and are based upon input water quality and customer and/or industry specific treatment requirements (medium TBT). All electrical, piping, fittings, pumps, and materials (equipment) used in the system can be engineered and system integrated to conform to requirement of the submitted RFQ.

TWT-MD-1007+1 (50 GPM)

Specifications:

Factory assembled and skid mounted on stainless steel frame, Size approx. 68"W X 52"H X 30"D, weight TBD (may vary according to custom design). 2'' in/out. Filter mediums and micronic sizes used in 3-stage filter housings as illustrated (see step 1 on page 6). Other filter mediums andmicronic sizes (filters are generally 10 & 20 microns) are available and are based upon input water quality and customer and/or industry specific treatment requirements (medium TBT). All electrical, piping, fittings, pumps, and materials (equipment) used in the system can be engineered and system integrated to conform to requirement of the submitted RFQ.

Upgrade: Customized skid-mounted systems 400 & higher GPM's to meet your treatment requirements available upon request

Optional: Remote sensor available upon request

TWT-SMD-200-4 (200 GPM) Point-Of-Entry/Point-Of-Use Treatment System

Factory Assembled Skid Mounted, Fork Lift/Fluid Management System. This system is a compact, self-contained, skid-mounted unit for the treatment of water.

Specifications:

• Approx Size: 84"W X 72"H X 60"D (may vary according component assembly) • Approx weight: 800 lbs. (may vary according to custom design) • Piping: 3" In/Out of system • 200 GPM • Filter medium and micronic sizes of filters are generally 20, 30, 50 microns (unless otherwise specified) used in staged filter housings are configured as illustrated (see step 1 on page 6). Other filter medium andmicronic sizes are available and are based upon input water quality and customer and/or industry specific treatment requirements (medium TBT). • Skid Mounted Water Treatment System • 4-Filter Housings • Staged Filtration • TWT® Deposit Control Technology • 7 Lamp Ultra Violet Disinfection & Purification • And other related components that provide for easy installation and operation • Stainless Steel Skid

Note: All TWTsystems are fully integrated, factory assembled and mounted, offering end to end fluid management and treatment solutions. System engineering design, weight , size and system component assembly may vary based TWT engineering review, water conditions, application, industry and/or customer specific needs.

Pumps, piping, fittings, valves, and other material needed to and from system owners responsibility.

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

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All-in-One Integrated Water Treatment Systems
P.O.E./P.O.U. Applications

Chemical-Free • Multi-Stage Filtration • Electro-Magnetic Fluid Conditioning • UV Disinfection / Purification

Triangular Wave Technologies, Inc. All-In-One fluid management systems, the ultimate in water treatment & conditioning.

TWT® systems are factory engineered and assembled, applying all of the needed elements for maximum fluid protection, management and peace of mind in one simple packaged solution. TWT® Filtration, Microprocessor Deposit Controller, Reaction Chamber and UV Disinfection units are combined to provide a start-to-finish answer to simplified prevention, treatment and management of water line contamination dangers.

The TWT All-In-One Fluid management water disinfection / purification systems are unique, compact, self-contained units for the treatment of water.

Water lines in the residential, 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.

TWT All-In-One Wall Mounted Systems

A. Self-cleaning sediment filter (optional)

The first step in achieving clean water is a filtration system. 15 micron filter with a built-in manual flush valve to purge built-up sediments in the bottom of the filter. Flow rates up to 10 GPM. Filter will initially clean the water so the replacement sediment and other media cartridges will have a much longer service and life cycle.

Note: Self cleaning filter for TWT MD1004, MD1005 & MD1006 available upon request (20" housing with higher flow rate).

B. Three (3) Stage Filtration

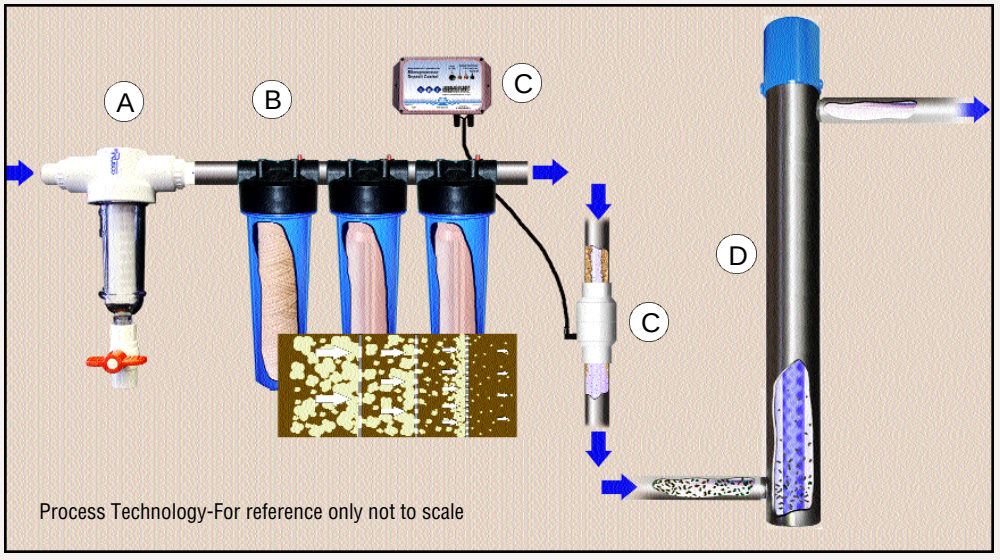
Filters are designed to trap various kinds of debris, dirt and organic particles that will otherwise enter your equipment and/or plumbing system, restrict your water flow and create a breeding ground for bacteria. Water is filtered to remove lingering sediment, chlorine, heavy metals, organic carbon compounds, volatile organic chemicals, pesticides and hundreds of other chemicals sometimes found in source water.(see step 1 on page 6)

C. TWT® Patented Deposit Control technology

Hard water problems solved easily. Control scale deposits, bacteria, corrosion, algae and colloids in all fluid based systems. Providing comprehensive end-to-end treatment & conditioning. ***(chemical-free)***

D. Ultra Violet Disinfection & Purification

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”.



Process Technology-For reference only not to scale

Triangular Wave Technologies, Inc. offers several systems designed to treat and fit your specific needs. These systems improve water quality, save energy, are none chemical, safe and cost effective.

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All-in-One Skid Mounted , Integrated Water Treatment Systems

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

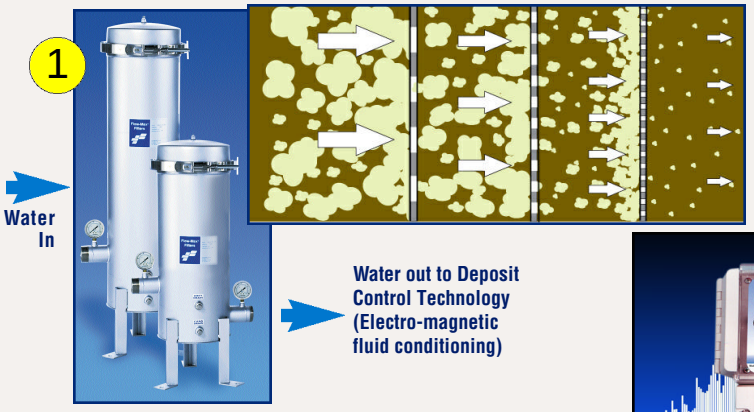
All-In-One modular fluid management systems, the ultimate in water treatment & conditioning.

TWT® systems are factory engineered and assembled, applying all of the needed elements for maximum fluid protection, management and peace of mind in one simple packaged solution. TWT® Filtration, Microprocessor Deposit Controller, Reaction Chamber and UV Disinfection units are combined to provide a start-to-finish answer to simplified prevention, treatment and management of water line contamination dangers.

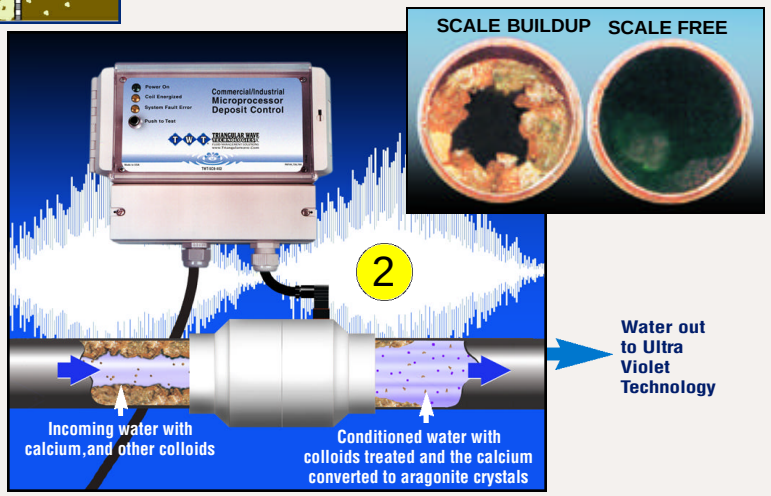
The TWT All-In-One Fluid management water disinfection/purification systems are unique, compact, self-contained units for the treatment of water.

Water lines in the residential, 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



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.

NOTE: The TWT® system installation must have enough room on all sides for filter & UV replacement and maintenance at the facility. This will allow most maintenance procedures to be accomplished without removing system components from their mounting brackets.

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

Technical Benefits of the All-in-One Multi-Process Treatment Units

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 residential, 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.

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

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.

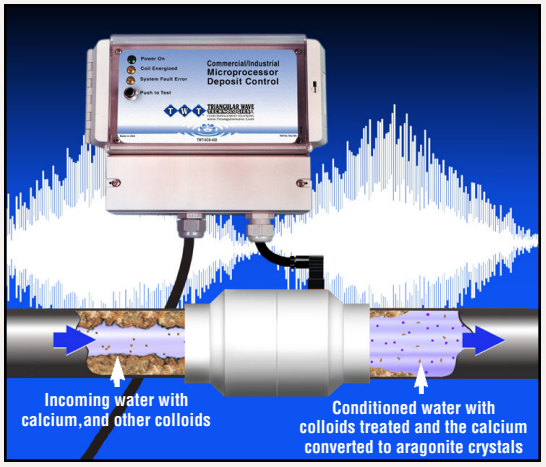
Step 2. TWT® Patented Deposit Control Technology

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 (CO_2), a carbonic acid. In the lower strata of the earth, the carbonic acid-enriched water dissolves lime ($CaCO_3$) from the subterranean rock and converts it to calcium-hydrogen 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 (CO_2) and the earth's alkalines, such as calcium and magnesium. The total hardness of water is determined by the sum calcium-hydrogen 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 Second Step in achieving clean water is the TWT Chemical-Free Deposit Control Technology (hard water problems solved easily)

The TWT® method for preventing the formation of lime deposits uses an electronic deposit controller, (Triangularwave System) which generates an electronically modulated frequency, an amplified triangulated wave 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 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 pre- and 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.

Triangular Wave Technologies, Inc. (TWT®) Technologically advanced method for water/fluid management & control. All-In-One Filtration, Disinfection & Purification Systems.

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*
- *STATE-OF-THE-ART PRODUCTION EQUIPMENT AND FACILITY TO MEET THE EVER CHALLENGING PRODUCTION REQUIREMENTS*
- *TECHNICAL AND TEST DEPARTMENT WITH OUTSTANDING QUALITY CONTROL GUARANTEED*
- *COST EFFECTIVE AND DELIVERED ON TIME*
- *IN ORDER TO ENSURE THE GREATEST LEVEL OF PERFORMANCE 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 TREATMENT REQUIREMENTS, INSTALLATION AND APPLICATION FOR YOUR INDUSTRY SPECIFIC PROJECT.*

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 Triangular Wave 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.

DON'T WAIT...Contact us today for a free consultation!
A luxury you CAN afford

TWT® has the versatile, efficient, cost-effective methods to solve your water/fluid management problems end to end.

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