

The Green Market Answer

Improve The Quality & Taste Of Your Water



Chemical-Free



After installing your chemical-free water treatment products at home or office, you will taste, feel, smell and see the difference in your water quality.

Triangularwave Technologies, Inc. (TWT®) All-In-One Fluid Treatment Kits

TWT® Multi-Process Filtration • Deposit Control Technology Ultra Violet (UV) Disinfection & Purification Combined for Maximum Effectiveness

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

TWT® “The Competitive Edge”



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

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

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 and 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.

How the TWT All-In-One Kits work!

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 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 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.



2. TWT® Patented Deposit Control Technology

The basic component of the TWT systems is the deposit controller. 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 triangular wave 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.

3. 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".



The output water is thus disinfected and offers exceptionally high quality for human consumption and use.

TWT® Deposit Control Technology, Ultra Violet Lamp Protection (cleaning) with Down-Stream Residual Benefits.



#TWT-AIOKIT: 4 GPM – Designed for pipes up to 3/4" in diameter

Kits Include:

One (1) 10" Double Filter Set – Sediment & Carbon

One (1) Triangularwave Chemical-Free Deposit Controller with a Copper pipe signal Enhancer for copper pipe application only. # TWT-5C8-472CSE

One (1) 4-GPM Ultraviolet Purifier. # TWT-UV-250

Kits include double filtration with an extra set of replacement filters, filter wrench, chemical-free deposit control (hard water treatment) and ultra-violet purification technology.

Note: All products are shipped with easy to follow application, installation and maintenance materials. Handy man and/or licensed plumbing contractor application and installation suggested. Note: If water feed lines at the facility are PVC / Pex or Non-magnetic material, you will not need the Copper pipe signal enhancer. Copper pipe signal enhancer optional, must specify if not required when placing purchase order.

All pumps, pipes, fittings, and other related plumbing equipment needed, owners responsibility. (battery not included)



#TWT-AIOKIT: 8 GPM – Designed for pipes up to 1" in diameter

Kits Include:

One (1) 20" Slim-line Double Filter Set – Sediment & Carbon

One (1) Triangularwave Chemical-Free Deposit Controller with a Copper pipe signal Enhancer for copper pipe application only. # TWT-5C8-472CSE

One (1) 8-GPM Ultraviolet Purifier. # TWT-UV-700

Kits include double filtration with an extra set of replacement filters, filter wrench, chemical-free deposit control (hard water treatment) and ultra-violet purification technology.

Note: (A) All products are shipped with easy to follow application, installation and maintenance materials. Handy man and/or licensed plumbing contractor application and installation suggested.

Note: If water feed lines at the facility are PVC / Pex or Non-magnetic material, you will not need the Copper pipe signal enhancer. Copper pipe signal enhancer optional, must specify if not required when placing purchase order.

All pumps, pipes, fittings, and other related plumbing equipment needed, owners responsibility. (battery not included)

Optional: Battery back-up system for all treatment kits

12 volt or 24 volt DC to AC inverter converts DC current into conventional AC electricity. Connect one of these units directly to a battery to operate.



Connect treatment kit to near by power source or inverter for battery power operation



#TWT-AIOKIT: 12 GPM – Designed for pipes up to 1" in diameter

Kits Include:

One (1) 20" Big Blue Double Filter Set – Sediment & Carbon

One (1) Triangularwave Chemical-Free Deposit Controller with a Copper pipe signal Enhancer for copper pipe application only. # TWT-5C8-472CSE

One (1) 12-GPM Ultraviolet Purifier. # TWT-UV-1200

Kits include double filtration with an extra set of replacement filters, filter wrench, chemical-free deposit control (hard water treatment) and ultra-violet purification technology.

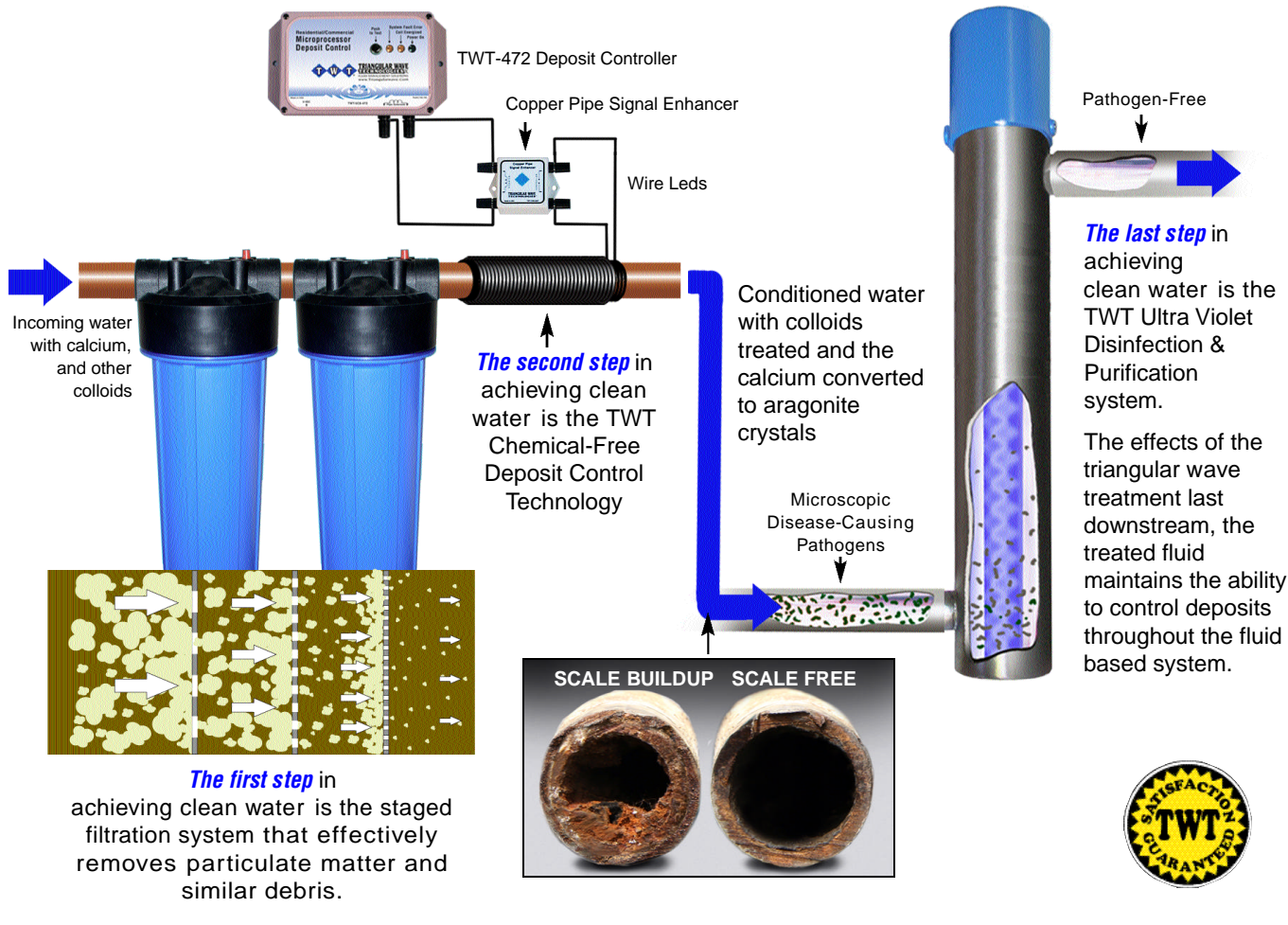
Note: (A) All products are shipped with easy to follow application, installation and maintenance materials. Handy man and/or licensed plumbing contractor application and installation suggested. Note: If water feed lines at the facility are PVC / Pex or Non-magnetic material, you will not need the Copper pipe signal enhancer. Copper pipe signal enhancer optional, must specify if not required when placing purchase order.

All pumps, pipes, fittings, and other related plumbing equipment needed, owners responsibility. (battery not included)

TWT All-In-One Kits are available for larger pipe applications, GPM requirements and process technologies may be up-graded, changed to meet your specific water treatment requirements upon request.

Note: Kits are available in 110/20-V or 220/30-V Must specify with Purchase Order.

TWT® Multi-Process Filtration, Conditioning, Treatment and Purification Technology



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.

TWT water treatment systems are ideally suited for Wells, Homes, Offices, Factories, Farms, Medical/Dental, Laboratory Environments, Restaurants, Rain Water Harvesting, Landscaping, Irrigation and anywhere the need for cleaner water to use and drink is required.



TWT All-In-One Water Treatment Kits, component configuration can be upgraded, changed to meet your home, office or factory specific treatment requirements. (Filtration, Deposit Control and/or Ultra Violet Technology)

Filtration • Patented Deposit Control Technology UV Disinfection & Purification

Optional Copper Pipe Signal Enhancer

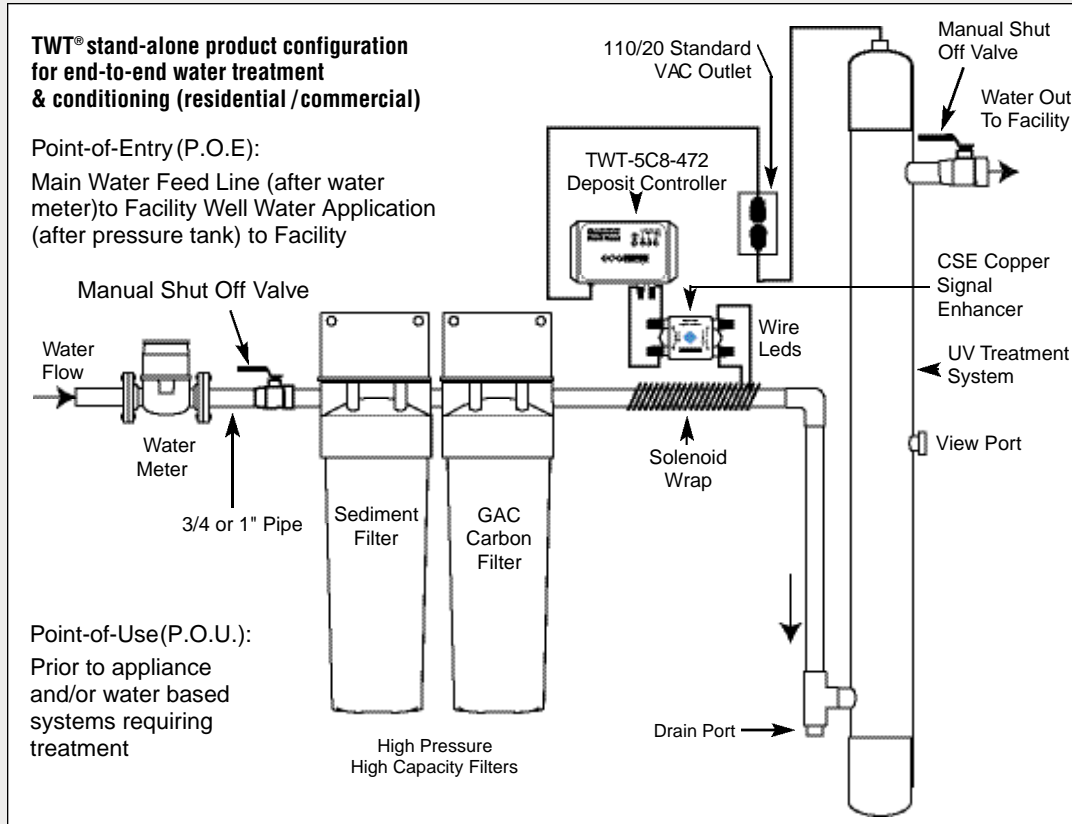
Copper pipes, although acceptable, are one of the more difficult of materials to work with. To overcome this, TWT has developed its Copper Pipe Signal Enhancer. This unit is placed between the Deposit Controller and the solenoid coil on the copper pipe. The function of the signal enhancer is to provide a proper impedance match and to ensure maximum energy transfer between the controller and the solenoid, which, in turn, ensures enhanced treatment of the fluid.

Magnetic pipe materials such as steel, galvanized steel, iron, ductile iron or cast iron become shields and prevent the proper energy transfer to the fluid path. For magnetic pipe applications we offer a full line of factory wrapped wire coil Reaction Chambers. TWT products are designed to provide comprehensive solutions to water and fluid management problems. The Copper Pipe Signal Enhancer and its equivalent for the magnetic pipe environment, TWT Reaction Chambers, offer the answer to limited signal penetration, ensuring optimal results. The copper signal enhancer is a passive signal / impedance matching circuit. This device provides a power boost to the conditioning signal in copper pipes. **Special Note:** Copper pipe signal enhancers are to be used on copper pipes only.



TWT-5C8-472
Residential
Commercial:
For pipes up to
1" Voltage: 9 vdc
Transformer

Freed water molecules
dissolving existing scale



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

UV lamp replacement:
To ensure adequate disinfection/purification of water line contamination, replace UV lamps every 10 to 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., replacement filters, UV lamps etc. be stored at owners facility at all times, that will insure uninterrupted service and treatment.

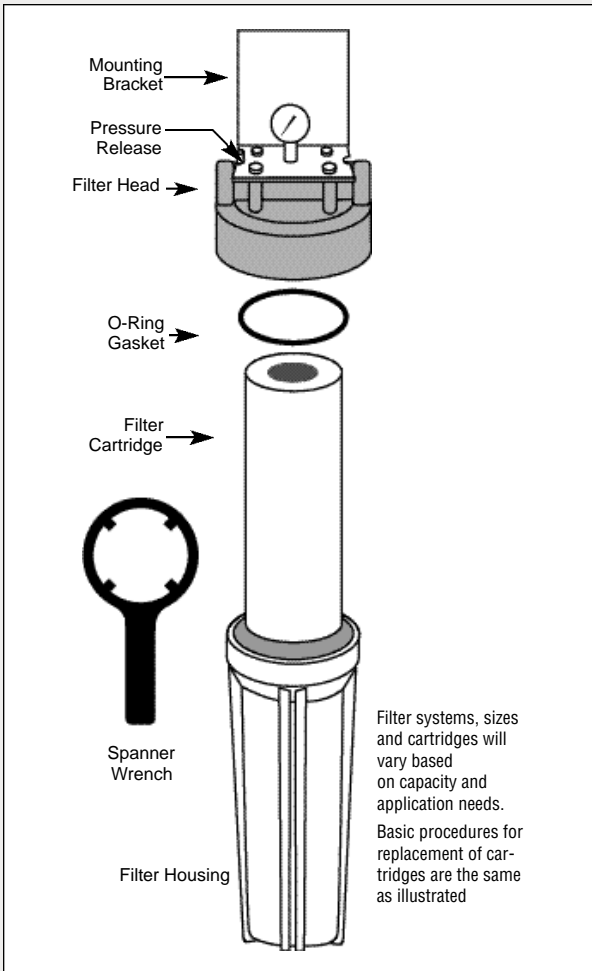
Other voltage sources available upon request (must specify)

Installation:
Licensed plumber and/or contractor is recommended

Must have enough room on all sides for filter and UV replacement & maintenance

TWT stand-alone products will vary in size, capacity and gpm treatment requirements (above schematic rendering not to scale, for reference only).

Basic Filter Replacement Guidelines



Review the application and installation manuals shipped with system

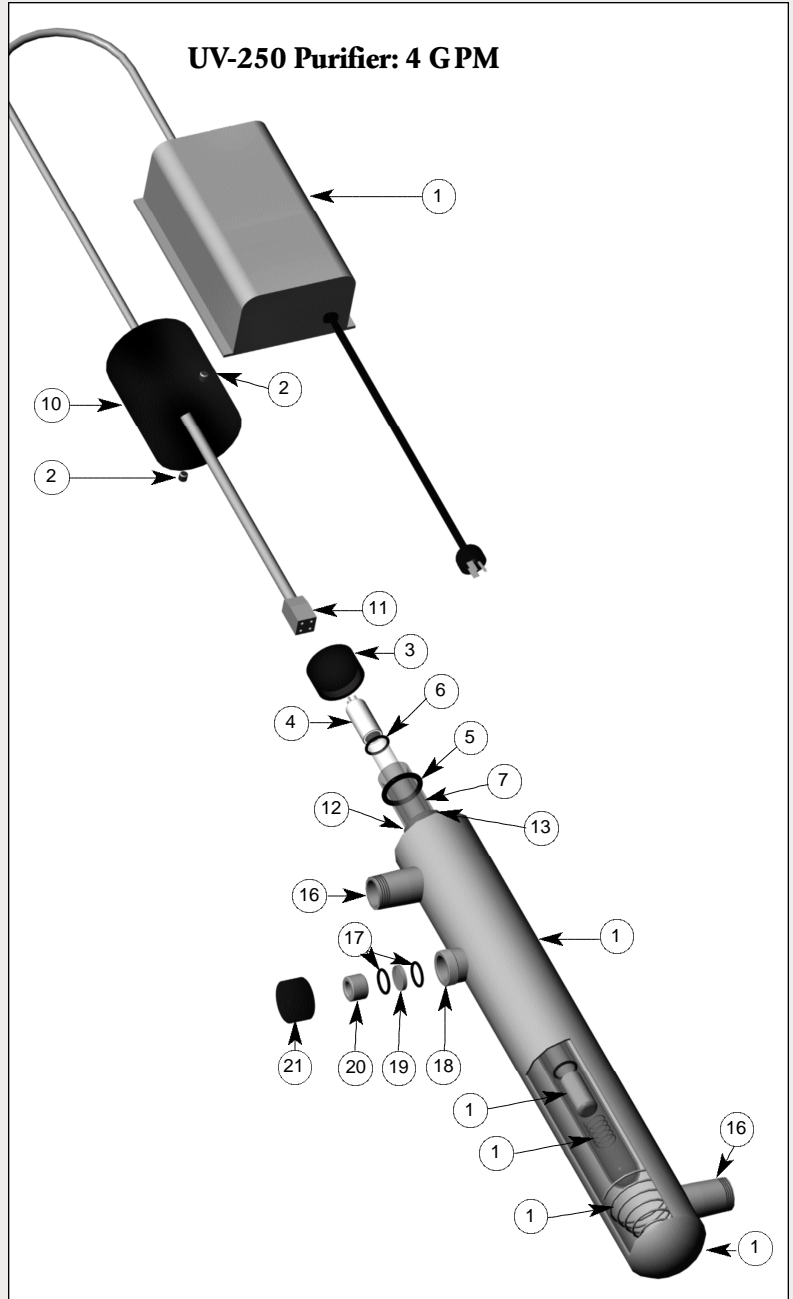
- Make sure the filters are free flowing, if they become clogged you must replace them.
- Replace filters when needed, generally twice a year, depending on water use, quality, conditions and pressure drop.
- Water condition and GPM determines need (hard water areas of the country may require more frequent replacements).
- Replace resin filter every 150 to 200 gallons of processed fluid (up to 20 grains), above 20 grains hardness to be determined (will vary based on equipment operating conditions, water quality in different areas of country. Manufactures suggest equip ment owners replace resin filters more frequently until they have established appropriate usage and time tables).

FILTER REPLACEMENT

When pressure readings reach or pressure drops to undesirable levels it is time to replace your filters.

1. Shut down system before performing any maintenance.
2. Turn off water supply to system.
3. Depress pressure release button to relieve pressure in filter housing(s).
4. Unscrew housing using spanner wrench (shipped with system). **NOTE:** When opening filter housing to change cartridge, it is common for O-Ring/Gasket to lift out of housing and stick to cap (remove carefully.)
5. Remove used cartridge and discard. Rinse out housing with about 1/3 full of water. Add about 2 to 3 tablespoons of bleach and scrub thoroughly with brush or sponge. Rinse thoroughly.
6. Remove O-ring/Gasket from housing and wipe groove and O-ring/Gasket clean. Lubricate O-ring/Gasket with a coating of clean food grade silicone grease. Place O-ring/Gasket back in place and press O-ring down into groove with two fingers (or place gasket on rim of sump housing).
NOTE: This step is important to ensure proper seal. Make sure O-ring is seated level in the groove (or gasket is on rim of sump (housing)).
CAUTION: If O-ring/Gasket appears damaged or crimped it should be replaced at this time, contact your distributor for replacement parts.
7. Insert the new cartridges into the sump (filter housing) making sure that it slips down into the housing.
8. Screw the sump (housing) onto the cap and hand tighten (**DO NOT OVER TIGHTEN**).
9. Turn on the water supply slowly to allow system to fill with water (check for leaks).
10. Depress the pressure release button to release trapped air from filter.
11. Restart system

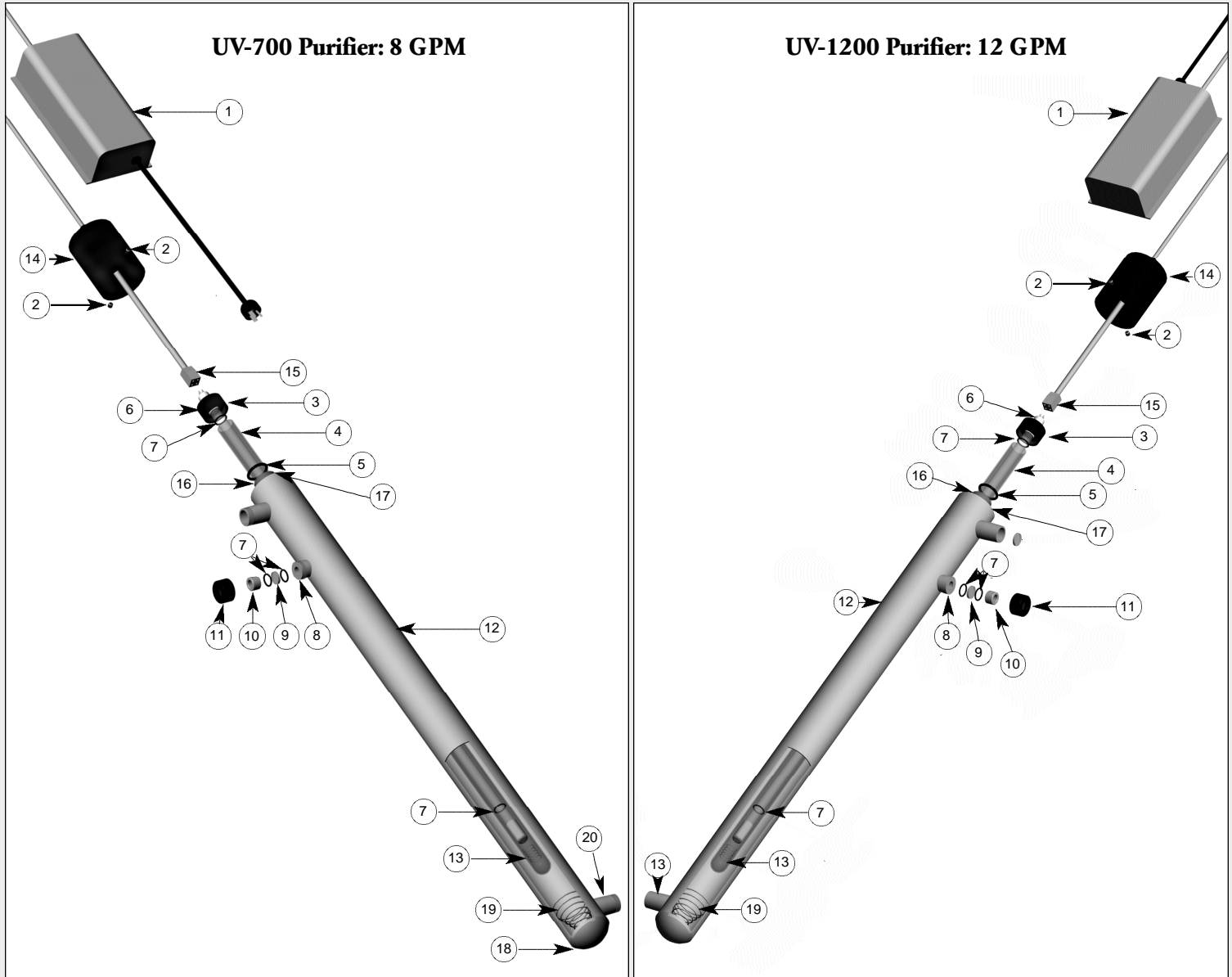
UV Lamp Replacement



Parts List

Item	Part No.	Description	Item	Part No.	Description
1	4-BE-425W-U	Ballast	12	8-50	End Washer
2	10-5	Set Screws	13	8-52	End Busing
3	8-51	Quartz Compression Nut	14	8-49-1	Concave Cap End
4	RL-12/436T5	UV Lamp	15	8-25	Conical Spring
5	11-3	Quartz Dome Seal 2-211	16	8-11	3/4" NPT 304SS Inlet/Outlet Port
6	11-6	Quartz Disc Seal/Lamp O-Ring 2-113	17	11-6	Glass Disc Seal/Lamp O-Ring 2-113
7	RQD-438	Quartz Dome Sleeve	18	8-10	Viewport Outer Bushing
8	2-2	UV-250 Chamber	19	7-15GL	Glass Viewport Disc
9	8-29-1	Lamp Extension Spring	20	8-11	Viewport Inner Bushing
10	8-4-1	Plastic Cap	21	8-9	Viewport Compression Nut
11	4-2	Lamp Connector			

UV Lamp Replacement



Parts List

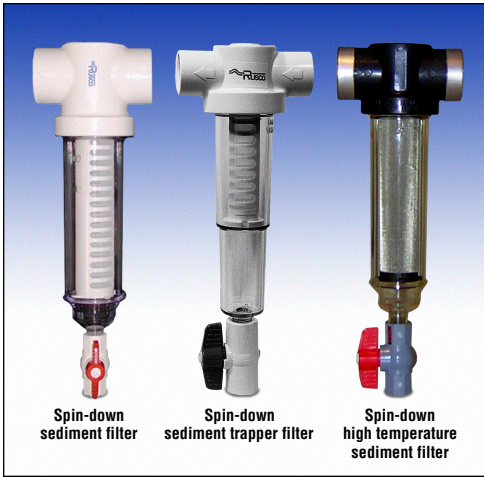
Item	Part No.	Description
1	4-BE-425W-U	Ballast
2	10-5	Set Screws
3	8-51	Quartz Compression Nut
4	RQD-895	Quartz Domed Sleeve
5	11-3	Quartz Dome Seal 2-211
6	RL-40/867T5	UV Lamp
7	11-6	Glass Disc Seal/Lamp O-Ring 2-113
8	8-10	Viewport Outer Bushing
9	7-15GL	Glass Viewport Disc
10	8-11	Viewport Inner Bushing
11	8-9	Viewport Compression Nut
12	2-3	UV700 Chamber
13	8-29	Lamp E Tension Spring
14	8-4-1	Plastic Cap
15	4-2	Lamp Connector
16	8-50	End Washer
17	8-52	End Bushing
18	8-49-1	Concave Cap End
19	8-25	Conical Spring
20	8-5	3/4" NPT 316SS Inlet/Outlet Port

Parts List

Item	Part No.	Description
1	BE-800WL-1/2	Ballast
2	10-5	Set Screws
3	8-51	Quartz Compression Nut
4	RQD-895	Quartz Domed Sleeve
5	11-3	Quartz Sleeve Seal 2-211
6	RL-84/893T5	UV Lamp
7	11-6	Glass Disc Seal/Lamp O-Ring 2-113
8	8-10	Viewport Outer Bushing
9	7-15GL	Glass Viewport Disc
10	8-11	Viewport Inner Bushing
11	8-9	Viewport Compression Nut
12	2-5	UV1200 Chamber
13	8-29	Lamp E Tension Spring
14	8-4-1	Plastic Cap
15	4-2	Lamp Connector
16	8-50	End Washer
17	8-52	End Bushing
18	8-49-1	Concave Cap End
19	8-25	Conical Spring
20	8-5	1.0" NPT 316SS Inlet/Outlet Port

Self Cleaning Sediment Filters

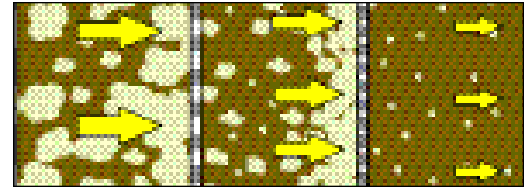
Spin-down™ sediment filters - Self-cleaning design, designed for large particle removal with manual purge valve



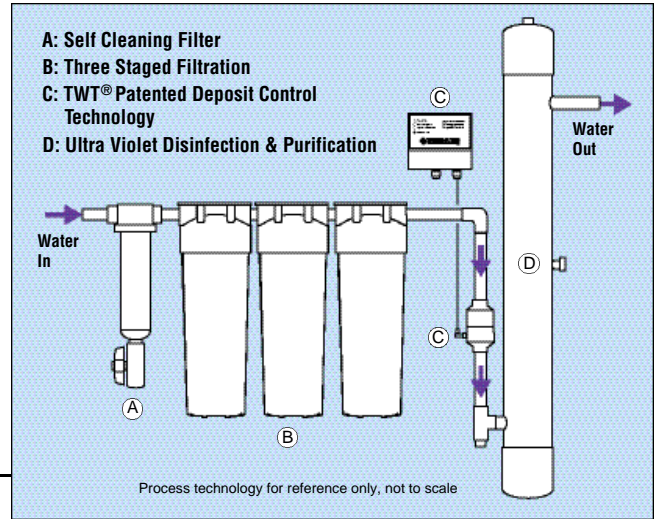
Filtration: The First Step in achieving clean water is a filtration system that effectively removes particulate matter and similar debris.

Staged Filtration* (optional)

The first stage in achieving clean water is a filter with a built-in manual flush valve to purge built-up sediments in the bottom of the filter (as illustrated). This filter will initially clean the water so the second stage filter system, replacement sediment and other media cartridges will have a much longer service and life cycle.



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 volatile organic compounds sometimes found in source water.



Optional: Self-Cleaning Sediment Filters

Filters with a built-in manual valve to purge built-up sediments in the bottom of the filter. Filter will initially clean the water so the replacement cartridges will have a much longer service life.

Triangularwave Technologies, Inc.(TWT®) Filtration • Deposit Control Technology
• Ultra Violet (UV) Disinfection & Purification Combined for Maximum Effectiveness

Hot Water Spin-Down Sediment Trapper™ Filters

Application post hot water heater

Need to Enhance Water Quality, and Improve Operating Efficiency and Life Cycle of Vertical Hot Water Heater/Boiler Systems Control Scale Deposits Bio-film

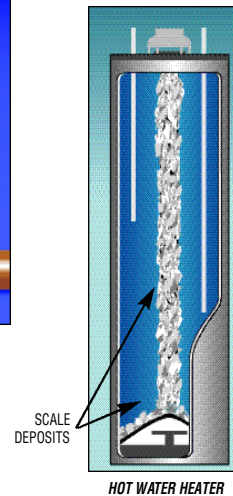
- Corrosion Algae and Colloids In Your Fluid-Fed Equipment

The build up of scale deposits is a common and costly problem in Hot Water Heaters and Boilers in the residential, commercial environments. The higher costs of maintaining and cleaning heaters and boilers can be attributed to the continuous cleaning of scaled surfaces or to the increased energy and operating costs due to the poor conductivity of the fluid pipe. For example, a 2.0 mm scale layer can induce a 47% decrease in overall heat transfer. Moreover, scale deposits narrow the inner diameter of piping, increasing the amount of energy required to pump the water through the system.

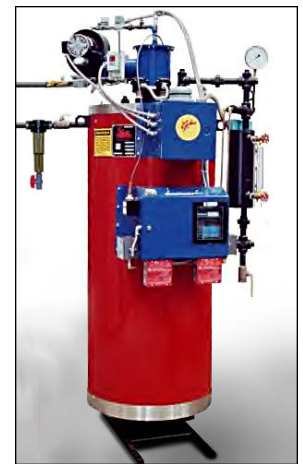


TWT® Deposit Control technology

- Removes Existing Scale on Heat Exchangers Over Time, Which Improves Heat Transfer for Greater Efficiency
- Eliminates Deposits in Pipes, and Fixtures
- Controls Scale and Bio-fouling in Water Fed Appliances
- Reduces Equipment Replacement & Downtime



Hot water sediment filters for water up to 200° F can be utilized, before and/or after the water heater to capture scale, and other particulate matter.



Vertical Boiler with Hot Water Filter



Pounds of scale removed from a 40 gallon hot water heater

Hard Water Problems Solved Easily!

Triangular Wave Patented Deposit Control System (TWT®) Technologically Advanced Method for Water & Fluid Management...CHEMICAL-FREE Your Simple and Safe Solution

- ***Eliminates Deposits in Pipes, Fixtures and Equipment***
(Softens and removes hard scale build-up around plumbing fixtures)
- ***Controls Algae and Bacteria***
(Prevents the formation of biofilm, the breeding ground for algae and bacteria)
- ***Reduces Soap Scum and Improves Lather of Soap***
- ***Reduces Detergent and Soap Use***
- ***Removes Existing Scale on Heat Exchangers Over Time, Which Improves Heat Transfer for Greater Efficiency***
- ***Salt and CHEMICAL-FREE Water Conditioning***
- ***Pennies Per Day to Operate***
- ***Cost Effective***
- ***Easy to follow application & installation manual***
- ***Energy Savings***
(Initial estimates indicate savings of between 15% to 30% on water heating bills in hard water areas)
- ***Reduced Household Maintenance***
(Prevents scale build-up and dissolves existing scale, making water heaters more efficient)
- ***Provides The effect Of Softened water***
(The water is scum-free and gives the benefits of soft water on skin, hair, clothes, and food preparation)
- ***Requires Little Or No Maintenance***
(No moving parts. design life cycle at 20 plus years)
- ***Portable and Compact***
(can be disconnected and brought with you when moving)
- ***Easy Installation***
(Requires little or no plumbing. A domestic electrical supply is all that is required (other voltage/current sources available upon request).

Sensing Environmental Needs with Intelligent Solutions

TWT® The Ultimate in Water Treatment & Conditioning

GO GREEN-SAVE GREEN

- • ***Control Scale Deposits***
- • ***Corrosion • Bacteria • Algae***
- • ***Colloids In Your Water/Fluid Based Systems***

Conserve Water, Save Energy... Non-Chemical, Efficient, Safe, And Cost-Effective

- ***Technologically Advanced Methods for Water Conditioning & Treatment (Chemical-Free)***

- ***Comprehensive Whole Home/Office Systems, Your Simple And Safe Method!...TWT® The Smart Water Solution***

- ***Value Added Technology***

- ***No Matter How Tough The Job... TWT® Has The Solution***

- ***Cleaner Water is Healthier Water!***

- ***TWT® Is Your Simple and Safe Solution***

In order to ensure the greatest level of performance and satisfaction in your work with the TWT products & systems, we recommend that you contact our engineering staff, who will be pleased to work closely with you to determine the optimal application and installation for your specific needs.

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

