

Sea Water RO

On-Board Desalination Systems



Description

Sea Water Reverse Osmosis Systems are designed to produce potable permeate water from sea water with up to 35,000 ppm TDS content. Designed for use on recreational yachts and light commercial vessels of all types, these systems will provide a daily production of 190 - 580 GPD (30 litres/hour - 300 litres/hour). They have a very small footprint and silent operation which means these units can be installed in almost any area. The systems can be fully automated with the addition of select optional equipment.

Systems include select pre-filtration and optional UV disinfection to provide the highest quality drinking water possible. All systems come with high rejection rate RO membranes and feature high/low pressure gauges and safety devices. Additional optional features are available, such as automatic flushing, extended pre-filtration or remote control.

3 Models for reacreational and commercial uses are available in various voltage configurations and flow rates.

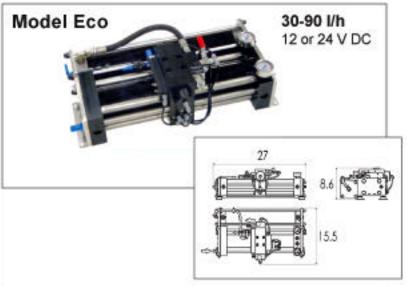
These desalination systems may be easily incorporated into a full on board drinking water system including pumps and pressure systems.

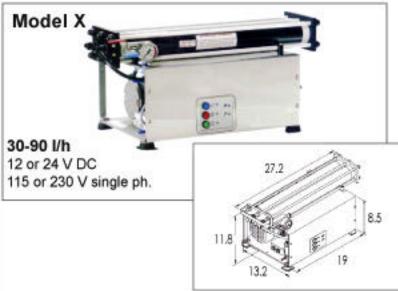
Features

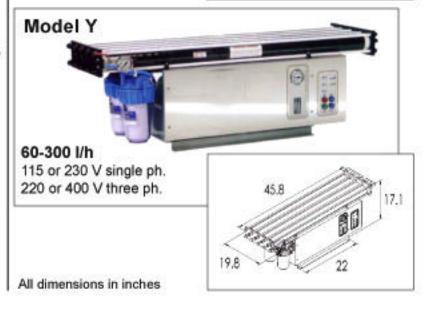
- Compact Design
- High Pressure Feed + CAT Pump
- Automatic Operation, Simple and Silent
- Salinometer, Auto Waste Valve
- Very Low Power Consumption

Options

- Auto Flushing
- Remote Control
- UV Disinfection
- Wide Range of Other Options







Specifications

Y-300 1900

300

220 Vr 400 Vr

Model Eco	Part #	Prod.* (GPD)	Prod.* (Litres/Hr)	Voltage	Power Consumption	Size L x W x H (cm)	Weight (kg)
	Eco30	190	30	12 V 24 V	12 A 6 A	67x38x20	48 48
	Eco60	380	60	12 V 24 V	25 A 12.5 A	67x38x20	56 56
	Eco90	570	90	12 V 24 V	24 A 17 A	67x50x20	68 68
Model X	Part #	Prod.* (GPD)	Prod.* (Litres/Hr)	Voltage	Power Consumption	Size L x W x H (cm)	Weight
	X-30	190	30	12 V 24 V 115 V 230 v	31 A 25 A 1 Kw 1 Kw	69x33x30	34 36 38 38
	X-50	320	50	12 V	31 A	69x33x30	40
	X-60	380	60	24 V 115 V 230 V	25 A 1 kW 1 kW	69x33x30	42 44 44
	X-90	570	90	115 V 230 V	1 kW 1 kW	69x33x30	50 50
Model Y	Part #	Prod.* (GPD)	Prod.* (Litres/Hr)	Voltage	Power Consumption	Size L x W x H (cm)	Weight (kg)
	Y-60	380	60	115 Va 230 Va 220 Vr 400 Vr	1.5 kW	117x45x37	61
	Y-120	760	120	115 Vs 230 Vs 220 Vr 400 Vr	1.5 kW	117x45x37	69
	Y-180	1140	180	115 Vs 230 Vs 220 Vr 400 Vr	2 kW	117x45x41	67
	Y-240	1520	240	115 Va 230 Va 220 Vr 400 Vr	2 kW	117x50x41	85
	V 200	1000	200	115 V₂ 230 V₅	2 6467	117u50u40	05



Design Assumptions

- Feed Water of <35,000 mg/l TDS
- SDI < 3
- Turbidity < 1 NTU for UV Disinfection

Standard Features

- High Rejection Rate Sea Water RO membranes
- 5 Micron Sediment Pre Filter
- High and Low Pressure Gauges and Safety Devices
- Stainless Steel Frame

Optional Features

- Automatic Flushing
- Advanced PLC Control for
- Remote Signaling and Control
- Permeate and Concentrate Flowmeters
- Separation Kit
- Maintenance Kit
- Additional Sand Filter

Additional Considerations

- Holding Tank
- Pressure System

Custom Orders Quote. Only Quotes are meant to ensure proper use, application and installation. Quotes based on price of material at time of purchase.

117x50x46

95

3 kW

Rated performance +/- 10% using standard seawater, with 35 g/l salinity, at 25 ° C

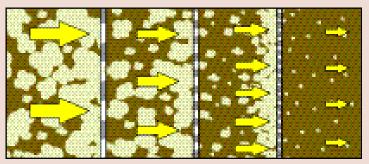
Sensing Environmental Needs With Intelligent Solutions

(TWT, Inc.) The Difference in Technology Matters

TWT, Inc. is focused on providing a complete selection of top quality water treatment, purification and conditioning solutions to discriminating consumers who demand the very best in water quality. Our mission is to provide you, the consumer, with direct access to premium water treatment technology solutions for you in your maritime, residential, industrial and commercial applications.

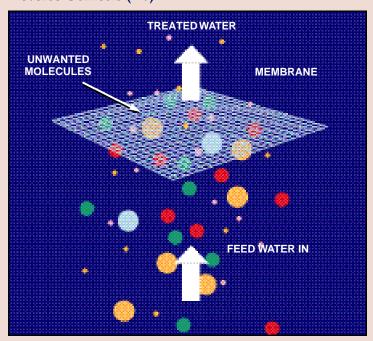
Triangularwave Technologies, Inc. products and systems provide technologically advanced methods for water and fluid management that are both efficient and cost-effective. Components and subsystems chosen from across the range of treatment methods can be combined in different configurations to provide custom solutions specific to any industry, site or application.

TWT, Inc. offers a full range of products & systems designed to address fluid problems wherever fluid flows. From patented deposit control technology to pre and post filtration, ionization, iron removal, disinfection, and ultraviolet purification treatment and conditioning, TWT has the versatile, efficient, cost-effective methods to solve your fluid management problems end to end.



The First Step in achieving clean water is a filtration system (media and/ or RO) that effectively removes particulate matter and similar debris.

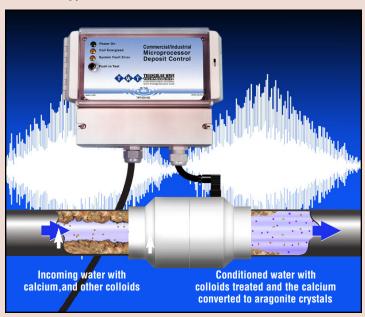
Reverse Osmosis (R0)



The RO membrane acts as a barrier to all dissolved salts and inorganic molecules, as well as organic molecules with a molecular weight greater than approximately 100. Water molecules, on the other hand, pass freely through the membrane creating a purified product stream. Rejection of dissolved salts is typically 95% to greater than 99%.

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.

TWT® Patented Chemical-Free Deposit Control Technology



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

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)*

Maritime Industry Application, Installation and Treatment Benefits, Potable, Process and Waste Water.

Engines, ballasts, heat exchangers, RO & other water feed equipment, turbines, Laundry equipment, water-cooled electrical equipment, boilers, pumps, valves and other related on board machinery or appliances.





Water Treatment Systems P.O.E. / P.O.U. Applications 5 of 10

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

The Third Step in achieving clean water is the TWT Ultra Violet, Ionization and/or Ozone Disinfection & Purification Technology. The output water is thus disinfected and offers exceptionally high quality for human consumption and use.

Ultra Violet Disinfection & Purification

Ultraviolet disinfection systems are mysterious to many people-how can "light"kill bacteria? But the truth is, it can. The Ultra-Violet (UV) disinfection & purification technology used in the system provides safe process and potable water, free of diseasecausing 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** Pathogen-Free these contaminant's with a 99.9% or greater kill rate." The output water is thus disinfected and offers exceptionally high quality water for process, human consumption and use. Microscopic Disease-**Causing Pathogens**

The Last Step in achieving clean water is a post filtration system if mandated, necessary and/or required.

- · Controls scale, bio-film & corrosion
- Enhance operating efficiency & life-cycle of equipment
- Saves water & energy
- Protect new equipment: TWT 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

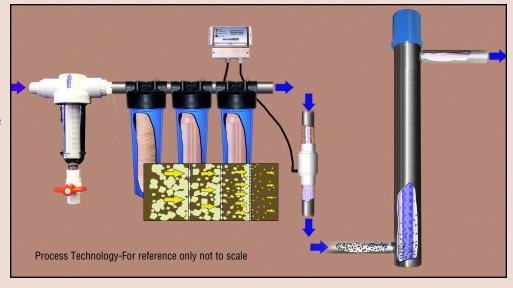
At TWT we feel the simplest way to choose a system depends on your personal situation. Maritime, home, office and facility owners with well water have different water treatment requirements than users who rent an apartment in a city. People with municipal water may choose to rely on a scaled down system that meets their current needs, while people drinking untreated ground or surface water need to fully account for all aspects of water treatment in order to guarantee the purity of their water. Contractors and architects building large projects or facilities managers responsible for maintaining expensive H.V.A.C. equipment have unique water treatment requirements as well. If you need guidance choosing the right system, contact us.

- · Regardless of the size of your vessel, or your budget, TWT has the right water treatment products at the right price that will enable you to get the quality water you deserve.
- For clients managing vessels who are looking for a custom system tailored to a specific set of requirements. TWT offers a FREE CUSTOM SYSTEM SPECIFICATION. Designing and implementing custom integrated "All-in-One" systems is one of our specialties, so if you are looking for a comprehensive custom water treatment solution for your vessel, home, office or facility, you have come to the right place.
- For clients with moderate water usage requirements, TWT can guide you in selecting the right combination of Point-of-Use products to ensure that all of the water you drink, wash, use and cook with is safe for your consumption.

Triangularwave 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.

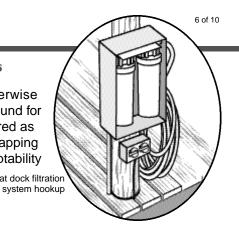
GO GREEN SAVE GREEN

Potable Water, Process and Waste Water Treatment & Conditioning



Yachts, House Boats, Pleasure Craft, Commercial Shipping & Marina Docks

Filters are designed to trap various kinds of debris and organic particles that will otherwise enter your equipment and/or plumbing system; restrict flow and create a breeding ground for bacteria. Filtration is the first line of defense. Filters used in filter housings are configured as illustrated. If fluid conditions require different media and/or additional micronic particle trapping for enhanced results, filters are available in various capacities providing flexibility & adaptability to meet the needs of all fluid conditions & applications.





TWT-14-WFS-15SC –Self Cleaning Sediment Filter Ideal for house boats, cottages and lake water applications

15 micron filter with a built-in manual flush valve to purge built-up sediments in the bottom of the filter. The self-cleaning sediment filter is 3/4" in/out PVC construction. Flow rates to 10 GPM. 15 micron filter will initially clean the water so the replacement sediment cartridges (usually at 5 micron) will have a much longer service life.

Size 8"W x 10"H x 4D" • Weight 2 lbs.



TWT-SYS250-FS - Filter Set

Complete with filter housings, mounting bracket, wrench for 3/4" in-out pressure tested.

Size 11"W x 24"H x 5 3/4"D • Weight 12 lbs

• Filter Included: 10" 5M Sediment and 10" 5M Carbon



TWT-SYS250-WFS34-FS – Filter Set with Self Cleaning Sediment Filter

Complete with filter housings, mounting bracket, wrench for 3/4" in-out pressure tested.

Size 19"W x 25"H x 5 3/4"D • Weight 15 lbs

• Filter Included: 15 micron, 10" 5M Sediment and 10" 5M Carbon



TWT-SYS700-FS -Filter Set

Complete with filter housings, mounting bracket, wrench for 3/4" in-out pressure tested.

Size 11"W x 25"H x 5 3/4"D • Weight 13 lbs

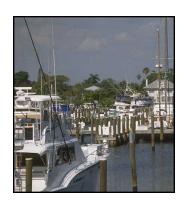
• Filter included: 20" Slim Line Sediment and 20" Slim line Carbon



TWT-SYS1200-FS -Filter Set

Filter Specs: Sed-5M/Carb -10M Filter Set - complete with filter housings, mounting bracket, wrench and 20" Big Blue sediment filter and 20" carbon filter-1" in-out-pressure tested

Size 14.5W" x 29"H x 8"D • Weight 22 lbs



TWT® Patented Deposit Control Technology

Control Scale and Biological Deposits in Water/Fluid Systems.

The Triangularwave System represents a significant breakthrough in electromagnetic technology. Triangularwave has made possible the use of electromagnetic technology in applications of all sizes, from maitime/residential to large commercial and industrial applications. An advanced system for controlling scale and bio-fouling; the electronic deposit control technology uses a signal coil wrapped around a pipe in the plumbing system being treated.

The signal coil produces an extremely small time-varying magnetic field inside the pipe, the resulting induced, oscillating electric field

provides the necessary molecular agitation for chemical-free scale prevention and removal.

Conserve water, save energy...non-chemical, safe, cost-effective treatment systems.

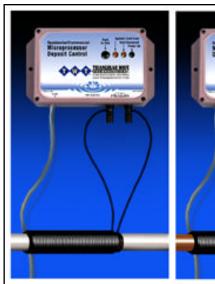
TWT-5C8-472 Patented Chemical-Free Deposit Control Technology

Microprocessor-driven deposit control systems for residential and commercial environments. Technologically advanced method for water & fluid management providing comprehensive end-to-end treatment & conditioning

- Designed for pipes 1 inch or less in diameter
- Size: 6.5"W x 3.75"H x 1.3"D
- Voltage: 9VDC
- A mperage: Draws less

than1 Amp.
• Coil length: 4"

For maximum results follow these simple guidelines (110/20V/220/30V)







TWT-Deposit Control Solenoid Coil Wrap on PVC Pipe Application:

PVC/Plastic pipes require NO copper pipe signal enhancer or reaction chamber

TWT-Deposit Control Solenoid Coil Wrap with a CSE Copper Pipe Signal Enhancer Application:

Copper pipe signal enhancer is required for copper pipe applications only

TWT-Deposit Control with Stainless Steel or PVC Reaction Chamber Application:

Magnetic pipes (steel/iron) require a reaction chamber

Power On Solt Energied Battery Powered MICROPROCESSOR DEPOSIT CONTROL SYSTEM TO USE A SOLUTION TO USE

TWT-163-12VDC Battery Powered Microprocessor Deposit Control System

- Designed for pipes
 1 inch or less in diameter
- Size: 3.75"W x 6.5"H x 1.3"D
- Voltage: 12VDC
- Amperage: Draws less than 1 Amp.
- Coil length: 4" double layer

Basic Application Guidelines





Upgrades (size/GPM) available upon request

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

Custom Orders Quote Only Quotes are meant to ensure proper use, application and installation. Quotes based on price of material at time of purchase.



ISO Certified Facility

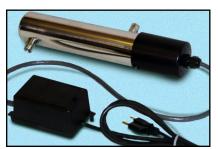
Ultra Violet Purification

Yachts, House Boats, Pleasure Craft, & Commercial Shipping

TWT Ultra Violet Disinfection & Purification:

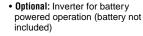
The TWT-UV sterilizers are ideally sized to provide safe disease and pathogen-free water at point-of-entry or point-of-use. The effective kill rate of microorganisms, including bacteria and viruses is 99.9%. No chemicals are added and the pH balance of the water is unchanged. TWT sterilizers operate continuously, automatically and are inexpensive to run. Source water does not require heating or cooling prior to sterilization. TWT sterilizers are easy to install and only require lamp replacement every 12 months. This is a simple ten minute procedure.





TWT-UV-1 (1-2 GPM)

- Rated Flow: 4 Liters per minute/1 Gallon per minute
- U.V. Dose @ Rated Flow: 42,000 mw/sec or 42 mJ/cm² at 1 GPM
- Maximum Flow: 5.8 Liters per minute Electrical Supply: 12VDC/24VDC 120 VAC/60Hz .2 Amp
- Power Consumption: 12 Watt
 Maximum Operating Temperature: 37C
- Maximum Operating Pressure: 125 psi 8.6 Bar Plumbing: 1/4" N.P.T. In-Out
- Size: 12.5"x 2.75 x 2.5" Weight: 4lbs (1.8 kg) Body: 304 or 316 Stainless Steel





TWT-UV-250 (4 GPM)

- · Rated Flow: 15 Liters per minute / 4 Gallons per minute
- Rated Flow UV Dose: 38.000 mw/sec or 38 mJ/cm² at 4 GPM
- Electrical Supply: 12VDC/24VDC 120 VAC/60Hz .36 Amp
- Maximum Operating Temperature: 37C (98.6F)
- Maximum Operating Pressure: 125 psi 8.6 Bar
- Plumbing: N.P.T. In-Out 3/4 inch Size: 23"L x 5.5"W x 2.5"H
- Weight: 7 lbs(3.2 kg) Body: 304 or 316 Stainless Steel



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.



TWT-UV-700 (8 GPM)

- Rated Flow: 30 Liters per minute 8 Gallons per minute Rated Flow UV Dose: 62 mJ/cm² (62,000 uwsec/cm²) @ 95% T
 - Electrical Supply: 120VAC/60Hz, .55 Amp Approx. Power Usage: 40.8 Watt Maximum Operating Temperature: 37°C (98.6°F) • Maximum Operating Pressure: 125 psi - 8.6 Bar (tested to 500 psi) • Plumbing: 3/4" N.P.T. In-Out
 - Size: 41" L x 4.75" W x 3.25" H Weight: 8 lbs (3.5 kg) Body: 316 Stainless Steel

The TWT-UV-700 sterilizer is best suited for large households. Both the UV-700 and UV-1200 are efficient for small commercial and restaurant applications too. As water passes through the ultra-violet chamber, the powerful UV rays kill disease causing microorganisms, including bacteria and viruses with a 99.9% kill rate. No chemicals are added and the PH of the water remains unchanged. TWT sterilizers operate continuously and automatically with no need to heat or cool the source water. They are inexpensive to operate, simple to install and practically maintenance free. Lamp replacement is necessary every 12 months and is a simple ten minute procedure.



TWT-UV-1200 (12 GPM)

- Rated Flow: 45 Liters per minute /12 Gallons per minute Rated Flow UV Dose: 54 mJ/cm² (54,000 uwsec/cm²) @ 95% T • Electrical Supply: 120V/60Hz .68 Amp • Approx. Power Usage 84 Watt
- Maximum Operating Temperature: 37°C (98.6° F) Maximum Operating Pressure: 125 psi 8.6 Bar (testes to 500 psi) • Plumbing: 1" N.P.T. In-Out • Size: 41"L x 6"W x 3.25"H • Weight: 8lbs (3.5kg) • Body: 304 or 316 Stainless Steel

TWT-UV-1500 (15 GPM)

• Rated Flow: 57 Liters per minute • 15 Gallons per minute • Rated Flow UV Dose: 42 mJ/cm² (42,000 uwsec/cm²) @ 95% T • Maximum Flow: 80 Liters per minute / 21 Gallons per minute • Electrical Supply: 120VAV/60Hz, 2 Amp • Approx. Power Usage 110 Watt • Maximum Operating Temperature: 37°C (98.6°F) • Maximum Operating Pressure: 125 psi - 8.6 Bar (tested to 500 psi) • Plumbing: 1" N.P.T. In-Out • Size: 50" L x 6" W x 8" H • Weight: 21 lbs (9.5 kg) Body: 316 Stainless Steel



TWT-UV-3000 (30 GPM)

- Rated Flow: 117 Liters per minute 30 Gallons per minute Rated Flow: UV Dose: 49 mJ/cm² (49,000 uwsec/cm²) @ 95% T • Electrical Supply: 120V/60Hz, 2.1 Amp • Approx. Power Usage 100 Watt • Maximum Operating Temperature: 37°C (98.6°F) • Maximum Operating Pressure: 125 psi - 8.6 Bar (tested to 500 psi) • Plumbing: 1.5" N.P.T. In-Out • Size: 52" L x 8" W x 8" H
- Weight: 45 lbs (20.5 kg) Body: 316 Stainless Steel

All-In-One Modular Multi-Process Treatment System

Yachts, House Boats, Commercial and Marinas

This fluid management system is a compact, self-contained, unit for the treatment of water. TWT® Multi-Process Filtration, Conditioning, Treatment and Purification Technology.

"TWT® The Competitive Edge"



Approximate Dimensions:28" H X 25" Wide

#TWT-RWH-4: 4 GPM Modular Unit Includes:

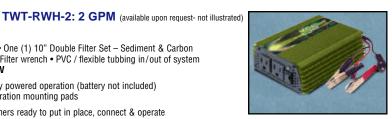
- One (1) Self-cleaning sediment filter One (1) 10" Double Filter Set Sediment & Carbon
- One (1) 4-GPM Ultraviolet Purifier Filter wrench PVC / flexible tubbing in/out of system
- Units available in 110/20V / 220/30V
- Optional: One (1) inverter for battery powered operation (battery not included)
- Optional: Pressure gauges / anti-vibration mounting pads

Treatment units are shipped to customers ready to put in place, connect & operate

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.

Battery, pumps, pipes, hose connections, fittings and other related plumbing equipment needed, owners responsibility.

Built to order only. Custom engineered, component assembled based on customer/industry specific requirements.



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.



Approximate Dimensions:28" W X 38" H

#TWT-RWH-8: 8 GPM

Modular Unit Includes:

- One (1) Self-cleaning sediment filter One (1) 20" Slim-line Double Filter Set Sediment & Carbon
- One (1) 8-GPM Ultraviolet Purifier Filter wrench PVC / flexible tubbing in/out of system
- Units available in 110/20V / 220/30V
- Optional: One (1) inverter for battery powered operation (battery not included)
- . Optional: Pressure gauges / anti-vibration mounting pads

Treatment units are shipped to customers ready to put in place, connect & operate...

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

Battery, pumps, pipes, hose connections, fittings and other related plumbing equipment needed, owners responsibility.

Built to order only. Custom engineered, component assembled based on customer/industry specific requirements.



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.

Upgrades (systems-size/GPM) available upon request

#TWT-RWH-12: 12 GPM

Modular Unit Includes:

- One (1) Self-cleaning sediment filter One (1) 20" Big Blue Double Filter Set Sediment & Carbon
- One (1) 12-GPM Ultraviolet Purifier. Filter wrench PVC / flexible tubbing in/out of system
- Units available in 110/20V / 220/30V
- **Optional:** One (1) inverter for battery powered operation (battery not included)
- Optional: Pressure gauges / anti-vibration mounting pads

Treatment units are shipped to customers ready to put in place, connect

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.

Battery, pumps, pipes, hose connections, fittings and other related plumbing equipment needed, owners responsibility.

Built to order only. Custom engineered, component assembled based on customer/industry specific requirements.

Custom Orders Quote Only Quotes are meant to ensure proper use,



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.



application and installation. Quotes based on price of material at time of purchase.

Lots of Companies Provide Products and Systems... TWT, Inc. Senses Environmental Needs with Intelligent Solutions! The Difference in Technology Matters!

Join our team, enter new markets, introduce new products, manage customer expectations and add more dollars to their bottom line!

TWT The Environmentally Friendly "Green Market" Solution!

See other technologically advanced products, systems and treatment methods for yourself visit www.twtwatertreatment.com www.triangularwave.com

The Triangularwave Technologies, Inc. team consists of a diverse group of bright individuals with years of experience, who combine their talents as a team, revolutionizing the way water/fluid management products & systems are engineered, designed, distributed and installed.

Don't Wait...Contact us today for the distributor near you, for a free consultation and/or for information on what TWT system will meet your industry specific application and treatment needs.

Value Added Technology

TWT® products and systems provide technologically advanced methods for water and fluid management that are both efficient and cost-effective.

Components and subsystems chosen from across the range of treatment methods can be combined in different configurations to provide custom solutions specific to GPM requirements and to any industry, site or application.

TWT systems work to consistently deliver high quality water, reduce scale and bio-fouling in Plumbing Systems, Coolant Systems, Fuel Systems, and to increase efficiency of both once-through and re-circulating HVAC, process cooling, industrial processing, waste water and other fluid based systems. Each product line offers a variety of

both stand-alone and comprehensive treatment solutions for end-to-end fluid management, for all types of applications.TWT water treatment systems are ruggedly constructed for exceptional performance. The rugged self-contained design of these systems ensure that the system will enjoy a long and reliable lifecycle when properly cared for.

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 industry specific needs.

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

The Return on Investment of a TWT, Inc. System is Undeniably Significant from Operational, Economical and Safety Point-Of-View.

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

TWT® The Ultimate in Chemical-Free Water Treatment & Conditioning

The Green Way



