

Specialty Water Technologies

Water Purification Devices

FDA 510K Cleared Manufacturer

K151637

Purpose Sheets





Sampling Station

K-A-PT-SWSS

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: Simplifies water system sampling by providing six point of use sample ports in one location. Each port is color-coded to identify each media tank or sample point.

Materials: The exterior is made of FDA approved, 1/4 and 1/2 inch High Density Polyethylene. Components include (25) feet of Blue, Orange, Black and Red PE tubing, (40) feet of Green and Yellow PE tubing, and (6) 1/4 inch valves. Lengths of tubing can be modified to user needs.



Mechanics: No electrical required. User manually turns valves to obtain water sample.

When equipped with SWT Pre-Treatment Monitor, Carbon Worker and Softener sample ports automatically open with Chlorine Timer when RO starts for water sampling.

User Quality Checks: Follow all facility procedures regarding regular inspection of equipment. Inspect tubing for cracks or leaks. Replace tubing annually. Allow only adequately trained and qualified personnel to service this equipment.

Keep component clean by periodically wiping with a soft cloth. Do not use harsh chemicals to clean the outside components of the system. Do not use solvents on decals. Inspect regularly for leaks and tighten fittings gently if needed.

Factors Effecting Operation: For accurate sampling, RO system should operate for length of time specified in facility protocol before samples are obtained.

Specialty Water Technologies, Inc. (SWT) provides high quality, innovative water purification systems, components and supplies primarily in the medical/dialysis market. A FDA 510k company SWT is dedicated to high quality equipment manufacturing with exemplary customer service and satisfaction. The owners and employees of SWT have a diverse background of medical, dialysis, manufacturing and business management

SPECIALTY WATER TECHNOLOGIES

Phone: 615-654-4441 Fax: 615-654-4449 Email: sales@specialtyh2o.com



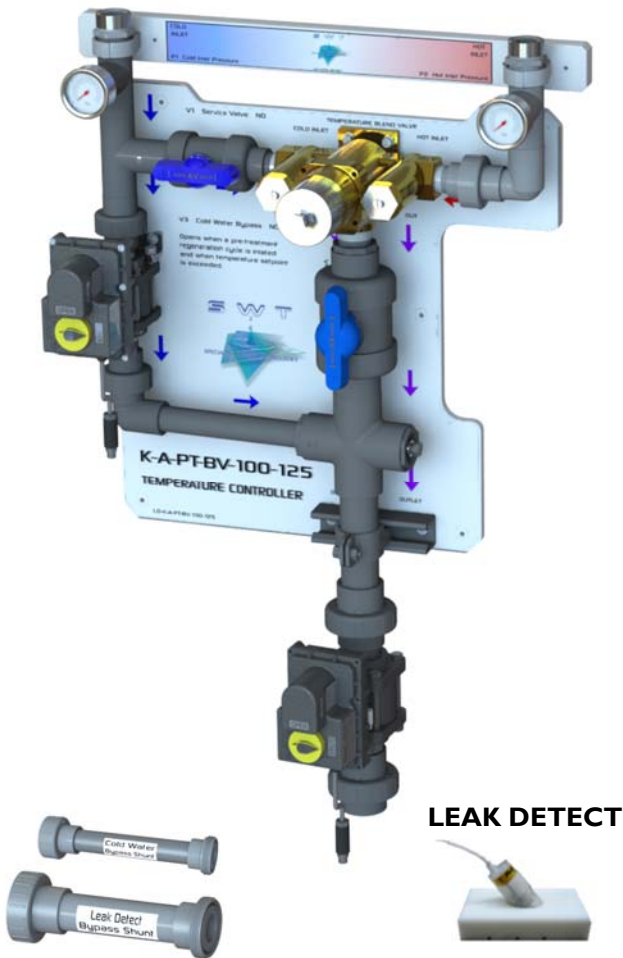
Blend Valve Assembly K-A-PT-BV-100-125

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The SWT Blend Valve Assembly is an automatic, mechanical device that blends cold and hot water to maintain a selected temperature for optimal performance of the reverse osmosis equipment in a water purification system. The cold water bypass diverts to cold water only for pre-treatment backwash cycles and when the temperature set point is exceeded. This saves energy by limiting hot water use. Optional leak detection will close incoming water valve in event of a water leak.

Materials: Composed of a Symmons Blend Valve, 1" Electric Valve, Cold and Hot Water Pressure Gauges, PVC Schedule 80 and CVC components, mounted on durable plastic and labeled for components and water flow direction.



Mechanics: Requires SWT Municipal City Boost System or Blend Valve control box with 24VDC electrical. Inlet water piping capable of delivering 20 GPM both hot and cold, and between 30-100 PSI pressure.

Blend valve is manually turned to adjust water temperature. Inlet and Outlet Service Valves are manually turned. Cold Water Bypass Valve receives signals from the SWT Boost System to automatically open and close during backwash cycles. Leak Detect will turn off the Municipal Boost and close inlet water valve when water is detected on floor of water room.

User Quality Checks: Monitor daily according to facility protocol to ensure water temperature is within specified limits. Routine inspection of the system is recommended. Follow all facility procedures regarding regular inspection of equipment. Keep component clean by periodically wiping with a soft cloth. Do not use harsh chemicals to clean the outside components of the system. Do not use solvents on decals. Inspect regularly for leaks and tighten fittings gently if needed.

Factors Effecting Operation: Follow all facility procedures regarding use of this equipment. The Blend valve should only be adjusted by qualified technical staff. Allow only adequately trained and qualified personnel to service this equipment.

The check valves in the blend valve are highly important factors in its proper operation. If chips, dirt or other foreign materials lodge on the seats and prevent the checks from fully seating, there may be a bypass of water into the opposing line, and the blend valve will not operate to its set delivery temperature. A bypass may be detected by feeling the supply line while the blend valve is not operating. If, for example, the cold line feels hot, the cold water check is not seating properly. It should be removed and the checks and its seat cleaned.

BYPASS SHUNTS

Provided in event of an electrical valve failure. Simply un-screw union nuts on electric valve and replace with bypass shunt until repairs are complete.

LEAK DETECT

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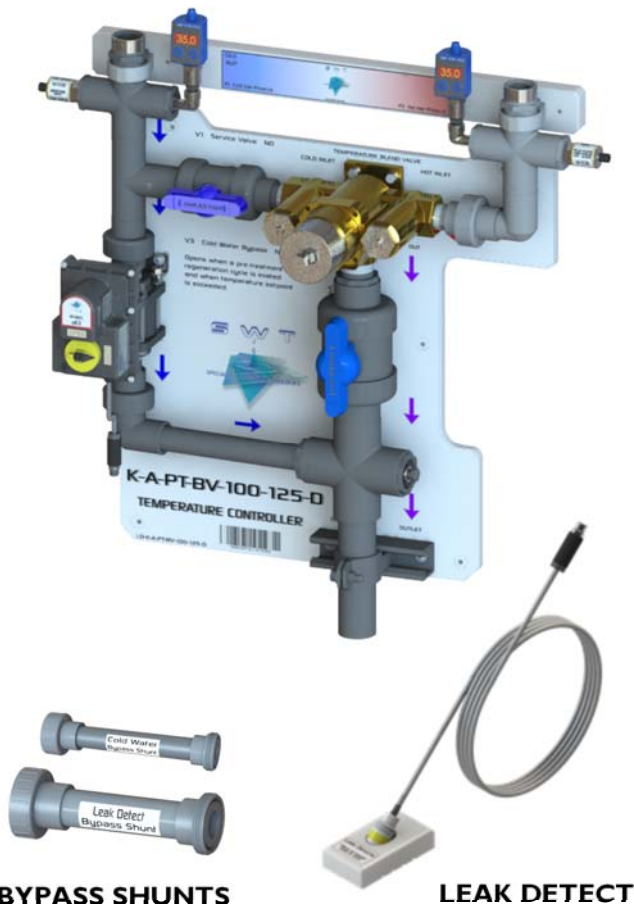
Digital Blend Valve Assembly K-A-PT-BV-100-125-D

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The SWT Digital Blend Valve Assembly is an automatic, mechanical device that blends cold and hot water to maintain a selected temperature for optimal performance of the reverse osmosis equipment in a water purification system. The cold and hot water pressure gauges display a digital temperature and pressure readout that interfaces with the SWT Pre-Treatment Monitor and Municipal Boost System. The cold water bypass diverts to cold water only for pre-treatment backwash cycles and when the temperature set point is exceeded. This saves energy by limiting hot water use. Optional leak detection will close incoming water valve in event of a water leak.

Materials: Composed of a Symmons Blend Valve, 1" Electric Valve, Cold and Hot Water Digital Pressure Gauges, PVC Schedule 80 and CVC components, mounted on durable plastic and labeled for components and water flow direction.



Mechanics: Requires SWT Municipal City Boost System with SWT Pre-Treatment Monitor with 24VDC electrical. Inlet water piping capable of delivering 20 GPM both hot and cold, and between 30-100 PSI pressure.

Blend valve is manually turned to adjust water temperature. Inlet and Outlet Service Valves are manually turned. Cold Water Bypass Valve receives signals from the SWT Boost System to automatically open and close during backwash cycles. Leak Detect will turn off the Municipal Boost and close inlet water valve when water is detected on floor of water room.

User Quality Checks: Monitor daily according to facility protocol to ensure water temperature is within specified limits. Routine inspection of the system is recommended. Follow all facility procedures regarding regular inspection of equipment. Keep component clean by periodically wiping with a soft cloth. Do not use harsh chemicals to clean the outside components of the system. Do not use solvents on decals. Inspect regularly for leaks and tighten fittings gently if needed.

Factors Effecting Operation: Follow all facility procedures regarding use of this equipment. The Blend valve should only be adjusted by qualified technical staff. Allow only adequately trained and qualified personnel to service this equipment.

The check valves in the blend valve are highly important factors in its proper operation. If chips, dirt or other foreign materials lodge on the seats and prevent the checks from fully seating, there may be a bypass of water into the opposing line, and the blend valve will not operate to its set delivery temperature. A bypass may be detected by feeling the supply line while the blend valve is not operating. If, for example, the cold line feels hot, the cold water check is not seating properly. It should be removed and the checks and its seat cleaned.

BYPASS SHUNTS
 Provided in event of an electrical valve failure. Simply un-screw union nuts on electric valve and replace with bypass shunt until repairs are complete.

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Municipal Boost with Pre-Treatment Monitor

K-A-MCB-PRE



SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The (K-A-MCB-PRE) Municipal Boost with Pre-Treatment Monitoring System is designed to be the central nervous system of the pre-treatment components of a water purification system. The system monitors pressures, temperatures, flows, automated valve positions, and pre-treatment timer head cycles. It also controls the pre-treatment Municipal Booster System, the RO interlock and the pre-treatment automated valves allowing for both monitor driven safety and active testing sequences. It is the central interactive hub for all alarms pre-treatment, and the SWT RO. These alarms are relayed from the control box to the Remote Monitor (Smart Nurses Station).

The K-A-MCB-PRE Municipal Boost w/Pre-Treatment Monitoring System incorporates the VFD Municipal Booster System utilizes a Variable Frequency Drive motor controller in lieu of a contactor and thermal overload. The system is also equipped with a pressure transducer which senses the pressure on the outlet/discharge side of the pump which will maintain the pressure programed into the controller. Once installed and calibrated, the system will adjust and maintain the preset pressure required for adequately running the RO system and the regeneration cycles of the media tanks. The pressure sensor continuously transmits an electronic signal to the VFD motor controller, which then accelerates or decelerates the pump in an attempt to maintain the preset pressure.

This allows the pump to operate when the R.O. turns on, or when a pre-treatment component (such as a media tank) goes into backwash and/or regeneration. This tight control all but eliminates pressure spikes when the R.O. turns off, and also prolongs the life of the Municipal Boost pump and motor.

Included is voice call leak detection that will shut off the incoming water and dial programed telephone numbers with a message if leak is detected. Also standard is Cold Water Bypass with Auto Cool, E.B.C.T Monitoring, Event Logging with CSV File Data Transfer Port (USB), Pressure Holding Test, pH Monitoring with Audible Alarm, and a Chlorine Testing Timer with Shift Interval, Auto RO On, and Sample Port Flush.

Materials: A NEMA rated Control Enclosure is mounted on a sturdy HPPE stand. It includes Electronic Controls, a 2 or 3 Horse Power VFD Pump, Schedule 80 PVC, Color Coded Valve Handles with Valve Tags, Flow Path Labeling, Emergency Water Connection, Hose Bib, Stainless Steel Pressure Gauge, Pressure Sensor, Visual Flowmeter, Brass Flow Switch, Temperature Sensor, a Leak Detection Device, Visual and Audio alarms.



Mechanics: Requires Inlet water piping capable of delivering 35gpm for a 2HP pump, 50gpm for a 3HP pump and 30-40 PSI pressure.

Requires 208-230 volt, single phase 20 AMP dedicated circuit with Twist and Lock receptacle for a 2HP pump and 30 AMP dedicated circuit with Twist and Lock receptacle for a 3HP pump.

User Quality Checks: Quarterly system should be inspected as follows: Unplug from wall outlet and inspect plug for signs of electrical burn. Inspect and clean vents on left side and bottom of control box. Ensure adequate ventilation. Wipe exterior and inspect pump for dust and debris accumulation on top of fan shroud. Keep fan shroud clean. Inspect and clean glass on flowmeter for visual clarity. Allow only adequately trained and qualified personnel to service this equipment.

Factors Effecting Operation: Routine inspection of the system is recommended. Follow all facility procedures regarding use of this equipment.

Operation may be effected due to insufficient water supply volume/pressure, motor rotation and other interfaced equipment.

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VFD Boost System

K-A-MCB-X-BVA

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The VFD Boost System boosts the incoming water pressure to ensure that there is sufficient water volume and pressure to safely operate the equipment within the water treatment system. Using a VFD pump and a pressure transducer, the system will adjust and maintain a preset pressure to adequately run the RO system and the regeneration cycles of the media tanks. The pump will only operate when the RO turns on or a media tank goes into backwash and/or regeneration thus prolonging the life of the pump and using 1/3 of the energy required by non-VFD systems.

Materials: The system is mounted on a sturdy HDPE stand with a NEMA rated Control Enclosure. It includes Electronic Controls, a 2 or 3 Horse Power VFD Pump, Schedule 80 PVC, Color Coded Valve Handles with Valve Tags, Flow Path Labeling, Emergency Water Connection, Hose Bib, Stainless Steel Pressure Gauge, Pressure Sensor, Visual Flowmeter, Brass Flow Switch, Temperature Sensor, a Leak Detection Device, Visual and Audio alarms.

Mechanics: Requires Inlet water piping capable of delivering 35gpm for a 2HP pump, 50gpm for a 3HP pump and 30-40 PSI pressure.

Requires 208-230 volt, single phase 20 AMP dedicated circuit with Twist and Lock receptacle for a 2HP pump and 30 AMP dedicated circuit with Twist and Lock receptacle for a 3HP pump.

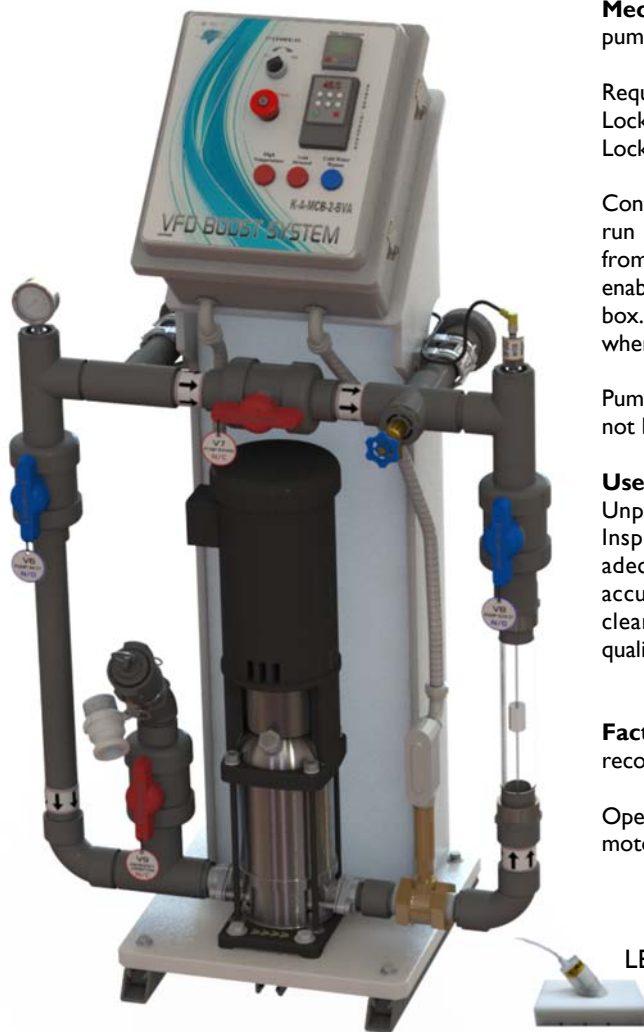
Controls are powered on with the "ON" switch on front of panel. This will run system in "Automatic" mode. Pump will turn on when it receives signal from RO or Media Tank Backwash cycle. In this mode, *Run Dry Protection* is enabled. Pressures and Water Temperature can be monitored from the control box. *Leak Detect* will turn off the Municipal Boost and close inlet water valve when water is detected on floor.

Pump may be run in "OVERRIDE" mode in an emergency situation but should not be left unattended. *Run dry protection is not active in Override mode.*

User Quality Checks: Quarterly system should be inspected as follows: Unplug from wall outlet and inspect plug for signs of electrical burn. Inspect and clean fan vents on left side and bottom of control box. Ensure adequate ventilation. Wipe exterior and inspect pump for dust and debris accumulation on top of fan shroud. Keep fan shroud clean. Inspect and clean glass on flowmeter for visual clarity. Allow only adequately trained and qualified personnel to service this equipment.

Factors Effecting Operation: Routine inspection of the system is recommended. Follow all facility procedures regarding use of this equipment.

Operation may be effected due to insufficient water supply volume/pressure, motor rotation and other interfaced equipment.



LEAK DETECT

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Leak Detect

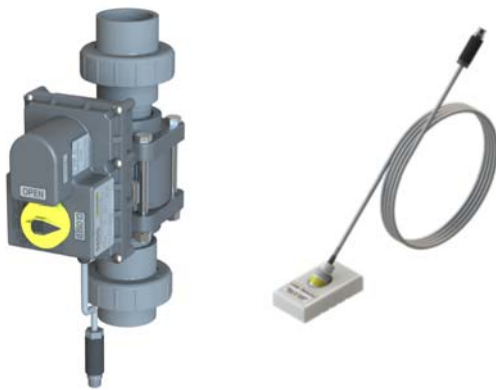
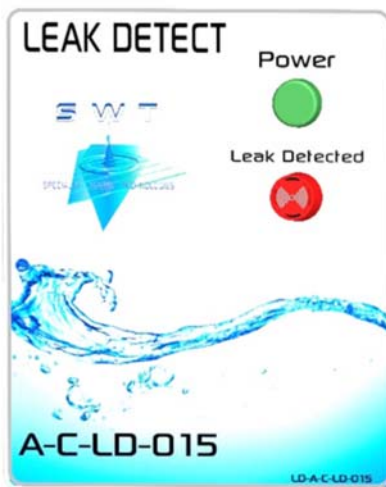
A-C-LD-015

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: Localized leak detection which sounds an audible alarm and closes the incoming water valve when leak is detected. Water valve opens when alarm is cleared.

Materials: Fiberglass NEMA Rated Enclosure to house electrical connections, Audible Alarm, Leak Detect Sensor and Automatic Valve.



Mechanics:

Requires:

- 1" or 1-1/2" incoming water line to Inlet Water Valve
- 120 VAC, 15 amp electrical receptacle

Leak detect sensor is placed in the floor where leak detection is desired. When water is detected, alarm will sound and the incoming water valve will close.

To reset the alarm, remove sensor from the floor and shake off excess water.

User Quality Checks:

Follow all facility and regulatory policies and protocols regarding this piece of equipment. Allow only adequately trained and qualified personnel to service this equipment.

Ensure leak detection sensor is placed in floor and cable is connected to control box.

Factors Effecting Operation:

In the event of a power failure, the auto valve will close. It will reopen when power is restored.

As above, ensure all connections are secure and leak detector is placed in the lowest spot on the floor.

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Call Notification Leak Detect A-C-LD-1000

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: Localized leak detection, detects water leak and shuts off incoming water valve to the water room. Sounds an audible alarm and sends out pre-programmed phone notifications.

Materials: Fiberglass NEMA Rated Enclosure to house electrical connections, Audible Alarm, Voice Alarm Dialer, Leak Detect Sensor and Automatic Valve.



Mechanics:

Requires:

- 1" or 1-1/2" incoming water line to Inlet Water Valve
- (2) 120 VAC, 15 amp electrical receptacles
- Existing phone system with touch tone phone for programming

Leak detect sensor is placed in the floor where leak detection is desired. When water is detected, alarm will sound and the incoming water valve will close. The voice dialer will initiate the phone call sequence.

To reset the alarm, remove sensor from the floor, shake off excess water and press the reset button.

User Quality Checks:

Follow all facility and regulatory policies and protocols regarding this piece of equipment. Allow only adequately trained and qualified personnel to service this equipment.

Ensure leak detection sensor is placed in floor, cable is connected to control box and phone line is connected to voice dialer.

Factors Effecting Operation:

In the event of a power failure, the auto valve will close. It will reopen when power is restored.

As above, ensure all connections are secure and leak detector is placed in lowest spot the floor.



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Leak Detect Shutoff Valve

A-LD-SHUTOFF-D

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The SWT Leak Detect Shutoff Valve Assembly is an automatic, mechanical device that shuts off water when a leak is detected by the Leak Detection system on the SWT Municipal City Boost or Pre-Treatment Monitoring systems. It closes the incoming water supply and turns off the municipal city boost system when a leak is detected protecting the facility from water damage. This system is used when a water heater and blend valve are not required. Includes water pressure and temperature sensors that display on the SWT Municipal Boost or Pre-Treatment Monitoring System.

Materials: Automatic Valve and PVC Piping mounted on Durable Plastic Bracket, Inlet Water Temperature Sensor, Digital Incoming Water Pressure Gauge/Sensor, Electrical Connection Block.

Mechanics:

Requires:

- SWT Municipal Boost or SWT Pre-Treatment Monitoring System
- Inlet water piping capable of delivering 35 GPM @ 30-100 PSI pressure.
- 24VDC supplied by Control Box / Boost System.

Leak detect sensor is placed at the lowest level of the floor where water will naturally travel. When water is detected, alarm will sound on boost system and the incoming water valve will close.

To reset the alarm, remove sensor from the floor and gently shake off excess water.

User Quality Checks:

Follow all facility and regulatory policies and protocols regarding this piece of equipment. Allow only adequately trained and qualified personnel to service this equipment.

Ensure leak detection sensor is placed in floor and cable is connected to connection block on valve bracket.

Factors Effecting Operation:

In the event of a power failure, the auto valve will close. It will reopen when power is restored.

As above, ensure all connections are secure and leak detector is placed in lowest spot the floor.



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SPECIALTY WATER TECHNOLOGIES

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Multi-Cartridge Filtration

A-PT-506 I

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The Multi-Cartridge Filtration is designed to remove particulate matter from the water source by occlusion using either a (1 or 5 micron) cartridge filter in a stainless steel housing before the media tanks. The system consists of four or five 20" or 30" long x 2 1/2" wide, (1 or 5) micron disposable filter cartridges. The system is capable of trapping large quantities of particulate matter while maintaining a high flow rate with little pressure drop. Assembly includes bypass valve and inlet and outlet valves to facilitate filter replacement.

Materials: Stainless steel housing, Schedule 80 PVC components, flex tubing, Inlet and Outlet pressure gauges, (1 or 5 micron) cartridge filters, and pre and post filter sample ports.



Mechanics: Functions by inlet water pressure delivering 35 GPM, and 30-120 PSI pressure. No electrical requirements.

User Quality Checks: Routine inspection of the system is recommended. Follow all facility and regulatory procedures regarding regular inspection of water system equipment. Allow only adequately trained and qualified personnel to service this equipment.

This component should be checked every day for pressure drop, as this is the primary indicating factor of when the filters should be changed. Routine replacement of the filters will be required as necessary (>15 psi pressure drop or every 30 days, whichever comes first).

When changing the filter, the inside of the filter housing should be wiped down with a clean cloth using either water or a mild (1%) bleach solution.

Factors Effecting Operation: >15 PSI Delta Pressure, Inlet PSI too low or too high, Air in Filter Bowls.

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Digital Multi-Cartridge Filtration

A-PT-506I-D

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The Digital Multi-Cartridge Filtration Assembly is designed to remove particulate matter from the water source by occlusion using either a (1 or 5 micron) cartridge filter in a stainless steel housing before the media tanks. The system consists of four or five 20" or 30" long x 2 1/2" wide, (1 or 5) micron disposable filter cartridges. The system is capable of trapping large quantities of particulate matter while maintaining a high flow rate with little pressure drop. Assembly includes bypass valve and inlet and outlet valves to facilitate filter replacement. The digital pressure sensors interface with the SWT Pre-Treatment Monitor and Municipal Boost System.

Materials: Stainless steel housing, Schedule 80 PVC components, flex tubing, Inlet and Outlet digital pressure gauges, (1 or 5 micron) cartridge filters, and pre and post filter sample ports.

Mechanics: Functions by inlet water pressure delivering 35 GPM, and 30-120 PSI pressure. Digital pressure sensors are powered by SWT Municipal Boost Pre-Treatment Monitor System.



User Quality Checks: Routine inspection of the system is recommended. Follow all facility and regulatory procedures regarding regular inspection of water system equipment. Allow only adequately trained and qualified personnel to service this equipment.

This component should be checked every day for pressure drop, as this is the primary indicating factor of when the filters should be changed. Routine replacement of the filters will be required as necessary (>15 psi pressure drop or every 30 days, whichever comes first).

When changing the filter, the inside of the filter housing should be wiped down with a clean cloth using either water or a mild (1%) bleach solution.

Factors Effecting Operation: >15 PSI Delta Pressure, Inlet PSI too low or too high, Air in Filter Bowls.

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Dual Big Blue Filtration

K-A-PT-5054

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The Dual Big Blue Filtration was designed to remove particulate matter from the water source by inclusion using either a (1 or 5 micron) cartridge filter in a polypropylene housing before the media tanks. The system consists of two 20" long x 4 1/2" wide (1 or 5 micron) disposable filter cartridges. The system is capable of trapping large quantities of particulate matter while maintaining a high flow rate with little pressure drop.

Materials: Two Big Blue housings, Schedule 80 PVC components, Inlet and Outlet pressure gauges, Two (1 or 5 micron) cartridge filters, pre and post filter sample ports, Mounted on a steel bracket.

Mechanics: Functions by inlet water pressure delivering 35 GPM, and 30-120 PSI pressure. No electrical requirements.

User Quality Checks: Routine inspection of the system is recommended. Follow all facility and regulatory procedures regarding regular inspection of water system equipment. Allow only adequately trained and qualified personnel to service this equipment.

This component should be checked daily for pressure drop, as this is the primary indicating factor of when the filters should be changed. Routine replacement of the filters will be required as necessary (>15 psi pressure drop or every 30 days, whichever comes first).

When changing the filter, the inside of the filter housing should be wiped down with a clean cloth using either water or a mild (1%) bleach solution.

Factors Effecting Operation: >15 PSI Delta Pressure, Inlet PSI too low or too high, Air in Filter Bowls.



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Digital Dual Big Blue Filtration

K-A-PT-5054-D

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The Digital Dual Big Blue Filtration system was designed to remove particulate matter from the water source by inclusion using either a (1 or 5 micron) cartridge filter in a polypropylene housing before the media tanks. The system consists of two 20" long x 4 1/2" wide (1 or 5 micron) disposable filter cartridges. It is capable of trapping large quantities of particulate matter while maintaining a high flow rate with little pressure drop. The digital pressure sensors interface with the SWT Pre-Treatment Monitor and Municipal Boost System.

Materials: Two Big Blue housings, Schedule 80 PVC components, Digital Inlet and Outlet pressure gauges, Two (1 or 5 micron) cartridge filters, pre and post filter sample ports, Mounted on a steel bracket.



Mechanics: Functions by inlet water pressure delivering 35 GPM, and 30-120 PSI pressure. Digital pressure sensors are powered by SWT Municipal Boost Pre-Treatment Monitor System.

User Quality Checks: Routine inspection of the system is recommended. Follow all facility and regulatory procedures regarding regular inspection of water system equipment. Allow only adequately trained and qualified personnel to service this equipment.

This component should be checked daily for pressure drop, as this is the primary indicating factor of when the filters should be changed. Routine replacement of the filters will be required as necessary (>15 psi pressure drop or every 30 days, whichever comes first).

When changing the filter, the inside of the filter housing should be wiped down with a clean cloth using either water or a mild (1%) bleach solution.

Factors Effecting Operation: >15 PSI Delta Pressure, Inlet PSI too low or too high, Air in Filter Bowls.

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Hurricane Filtration

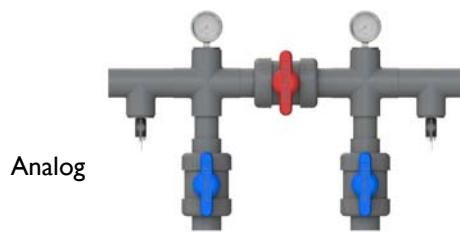
A-PT-5725

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The Hurricane Filter assembly was designed to remove particulate matter from the water source using a combination of cyclonic separation before cartridge filtration. The system is capable of trapping large quantities of particulate matter while maintaining a high flow rate with little pressure drop. SWT offers a digital or analog model. The stainless-steel housing requires (1) 19-1/2" H x 7-3/4" Dia., 0.35 to 5 micron reusable filter cartridge (Sold Separately).

Materials: 304SS Stainless Steel housing, Schedule 80 PVC components, Digital or Analog Inlet and Outlet Pressure Gauges, Pre and Post Filter Sample Ports, and Drain Valve.



Mechanics: Functions by inlet water pressure delivering 35 GPM, and 30-120 PSI pressure. Digital pressure sensors are powered by SWT Municipal Boost Pre-Treatment Monitor System.

User Quality Checks: Routine inspection of the system is recommended. Follow all facility and regulatory procedures regarding regular inspection of water system equipment. Allow only adequately trained and qualified personnel to service this equipment.

This component should be checked daily for pressure drop, as this is the primary indicating factor of when the filters should be changed. Routine replacement of the filters will be required as necessary (>15 psi pressure drop or every 30 days, whichever comes first). For optimum performance the drain valve should be opened routinely by hand.

When changing the filter, the inside of the filter housing should be wiped down with a clean cloth using either water or a mild (1%) bleach solution.

Factors Effecting Operation: >15 PSI Delta Pressure, Inlet PSI too low or too high, Air in Filter Housing.

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Iron Filtration

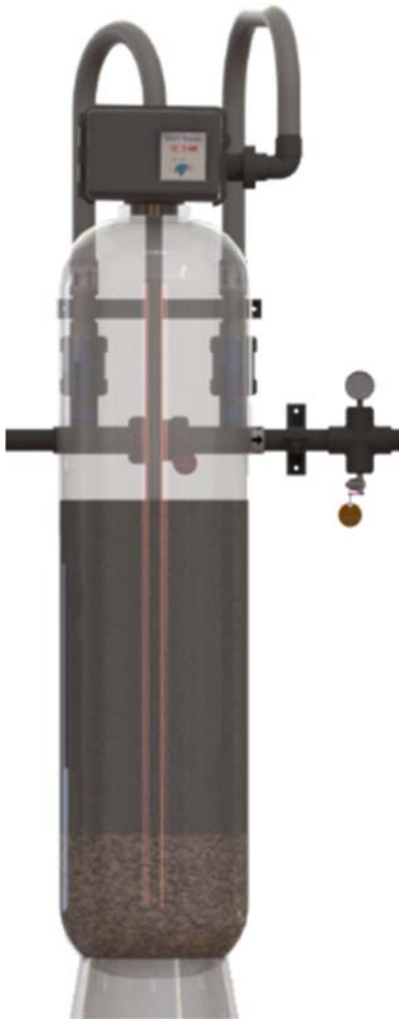
D-MT-60XX

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The Iron Filter is part of the water purification Pre-Treatment (Before Reverse Osmosis). The Iron filter utilizes a Pyrolox media that is designed to remove iron and other heavy metals from tap water.

Materials: Fiberglass Tank, Digital Fleck Clock Controller, PVC schedule 80, Media (gravel, Filox-R).



Mechanics: : Requires tempered water at inlet, 120 VAC with ground faulted protection, 70 GPM drain capacity.

As water flows downward through the bed, it is trapped by the iron removal media, then removed when the filter goes into an automatic backwash cycle.

User Quality Checks: Routine inspection of the system is recommended. Follow all facility and regulatory policies and protocols regarding this piece of equipment. Allow only adequately trained and qualified personnel to service this equipment.

Monitor Delta pressure daily. If pressure drop is 15 or more, increase backwash cycles. Replace media if backwashing does not correct the pressure drop.

Factors Effecting Operation: Operation may be effected due to insufficient water supply, >15 PSI Delta Pressure, Air in tank, Backwash timer failure.

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Multi Media Depth Filter

D-MT-60XX

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The Multi Media Depth Filter is part of the water purification Pre-Treatment (Before Reverse Osmosis). It is highly effective in removing suspended particulate matter from water that has a high silt density index (SDI).

Materials: Fiberglass Tank, Digital Fleck Clock Controller, PVC schedule 80, Media (gravel, coarse garnet, fine garnet, sand, anthracite),



Mechanics: Requires tempered water at inlet, 120 VAC with ground faulted protection, 45 GPM drain capacity.

As water flows downward through the bed, it encounters layers of media with decreasing porosity, so that successively smaller particles are trapped in each layer.

User Quality Checks: Routine inspection of the system is recommended. Follow all facility and regulatory policies and protocols regarding this piece of equipment. Allow only adequately trained and qualified personnel to service this equipment.

Monitor Delta pressure daily. If pressure drop is 15 or more, increase backwash cycles. Replace media if backwashing does not correct the pressure drop.

Factors Effecting Operation:

Operation may be effected due to insufficient water supply, >15 PSI Delta Pressure, Air in tank, Backwash timer failure.

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Carbon Filtration

K-A-MT-4XXX

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: Carbon Filtration is part of the water purification Pre-Treatment (Before Reverse Osmosis). The Carbon Filtration System works through adsorption to remove free chlorine and chloramines from the Municipal incoming water supply. The system protects the RO and most importantly, the Patients on Hemodialysis, from Chlorine and Chloramines. The system consists of at least 2 properly sized pressure vessels (*tanks*) which are filled with predetermined volumes of carbon. The tanks are connected in series with tank #1 adsorbing the entire load (worker) and tank #2 performing a polishing task (polisher) while providing back-up capability.

Materials: PVC Schedule 80 piping, PVC FDA approved flex tubing, fiberglass media tanks, digital backwash timers, media underbed gravel, Bituminous Activated Carbon (Acid Washed).

Mechanics: Requires tempered water. Electrical requirements for the *Digital Fleck Heads* are 120 VAC from an uninterruptable, ground fault protected circuit. Drain must facilitate up to 65 GPM.

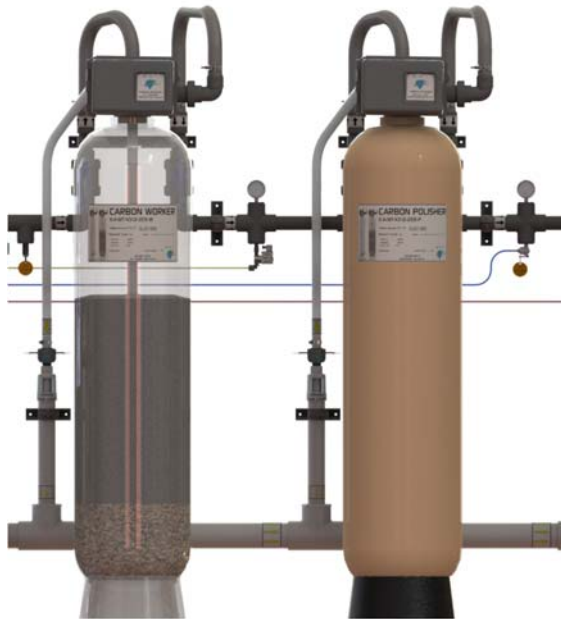
Pressurized water is pushed through the tanks allowing adsorption to take place in the bed of carbon. For optimal adsorption, the carbon must be high quality, granular activated, acid washed and designed for the purification of aqueous liquids which may be sensitive to acid soluble constituents such as iron. The carbon bed in each tank must be periodically (usually every other day) backwashed to expose new adsorption sites in the media. This is accomplished by the digital media heads that are set to facility specific times to occur.

User Quality Checks: Follow all facility and regulatory policies and protocols regarding this piece of equipment. Allow only adequately trained and qualified personnel to service this equipment. Daily monitor the inlet and outlet pressures along with the Delta Pressure (pressure drop) across the filter while the RO is running. Daily monitoring should be done to ensure that chlorine/ chloramine free water is available for patient dialysis. This requires testing for chlorine/chloramines as outlined in facility and regulatory policy and protocol.

Factors Effecting Operation: High pH in incoming water can effect chlorine removal. Inadequate incoming water pressure during backwash cycles will result in poor backwashing and channeling may occur.

The system must be sized appropriately in order to meet Empty Bed Contact times specified by facility/regulatory guidelines.

The media in the tank should be changed (re-bedded) if the chlorine/ chloramine breakthrough is greater than the facility and/or regulatory limit after two verified backwashing cycles.



For Patient Safety, Chlorine testing must be done according to facility and regulatory guidelines.

Dialysis must be discontinued if chlorine/ chloramine levels exceed the limit specified in facility and regulatory guidelines.

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Water Softener

K-A-MT-5XXX

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The Water Softener is part of the water purification Pre-Treatment (Before Reverse Osmosis). Its purpose is to remove calcium and magnesium from the water in exchange for sodium ions. This protects the RO membranes from scaling.

Materials: PVC Schedule 80 piping, PVC FDA approved Flex Tubing, Fiberglass Media Tank, Brine Tank, Fleck Digital Timer, Media Underbed Gravel, Softener Resin,

Mechanics: Requires tempered water. Electrical requirements for the *Digital Fleck Head* are 120 VAC from an uninterruptable, ground fault protected circuit. Drain must facilitate up to 50 GPM.

Pressurized water is pushed through the tank where the resin removes calcium and magnesium ions by exchanging them for sodium ions. The *Digital Fleck Head* controls regeneration of the softener. The timer is set to regenerate by specific facility needs. Premium grade salt pellets made for water softening are used in the brine tank.



User Quality Checks: Follow all facility policies and protocols regarding this piece of equipment. Allow only adequately trained and qualified personnel to service this equipment. Monitor the inlet and outlet pressures daily. Keep salt level above water in brine tank. Test water hardness according to facility and regulatory protocol.

Factors Effecting Operation: Keep salt level in brine tank above water level in order to achieve optimal resin regeneration. Test water hardness according to facility and regulatory policy and protocol. Replace resin when hardness exceeds limits despite adequate regeneration cycles.

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Dealkalizer System

D-MT-5XXX

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The Dealkalizer is part of the water purification Pre-Treatment (Before Reverse Osmosis). It's purpose is to remove bicarbonate and carbonate ions from tap water. The Dealkalizer is placed after the softener and before the carbon tanks in the system.

Materials: PVC Schedule 80 piping, PVC FDA approved Flex Tubing, Fiberglass Media Tank, Brine Tank, Fleck Digital Timer, Media Underbed Gravel, Dealkalizing Resin,

Mechanics: Requires softened, tempered water. Electrical requirements for the *Digital Fleck Head* are 120 VAC from an uninterruptable, ground fault protected circuit. Drain must facilitate up to 20 GPM.

Pressurized water is pushed through the tank where the resin removes Bicarbonate and Carbonate ions by exchanging for Chloride ions. The *Digital Fleck Head* controls regeneration of the dealkalizer. The timer is set to regenerate by specific facility needs. Premium grade salt pellets made for water softening are used in the dealkalizer brine tank.



User Quality Checks: Follow all facility and regulatory policies and protocols regarding this piece of equipment. Allow only adequately trained and qualified personnel to service this equipment. Monitor the inlet and outlet pressures daily. Keep salt level above water in brine tank. Test and document the pH before and after the dealkalizer daily according to facility and regulatory protocol.

Factors Effecting Operation: Keep salt level in brine tank above water level in order to achieve optimal resin regeneration. Test water pH according to facility and regulatory policy and protocol. Replace resin when pH exceeds limits despite adequate regeneration cycles.

A change in the pH of incoming water may effect performance.

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Organic Scavenger

D-MT-5XXX

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The Organic Scavenger is part of the water purification Pre-Treatment (Before Reverse Osmosis). It's purpose is for the reduction of organic material from softened tap water. The Organic Scavenger is placed after the softener and before the carbon tanks in the system.

Materials: PVC Schedule 80 piping, PVC FDA approved Flex Tubing, Fiberglass Media Tank, Brine Tank, Fleck Digital Timer, Media Underbed Gravel, Macroporous Polyacrylic Resin and/or Macroporous Polystyrene Resin.

Mechanics: Requires softened, tempered water. Electrical requirements for the *Digital Fleck Head* are 120 VAC from an uninterruptable, ground fault protected circuit. Drain must facilitate up to 10 GPM.

Pressurized water is pushed through the tank where the resin removes organic material using ion exchange. The *Digital Fleck Head* controls regeneration of the dealkalizer. The timer is set to regenerate by specific facility needs. Premium grade salt pellets made for water softening are used in the dealkalizer brine tank.



User Quality Checks: Follow all facility and regulatory policies and protocols regarding this piece of equipment. Allow only adequately trained and qualified personnel to service this equipment. Monitor the inlet and outlet pressures daily. Keep salt level above water in brine tank. Test and document the pH before and after the Organic Scavenger daily according to facility and regulatory protocol.

Factors Effecting Operation: Keep salt level in brine tank above water level in order to achieve optimal resin regeneration. Test water pH according to facility and regulatory policy and protocol. Replace resin when pH exceeds limits despite adequate regeneration cycles.

A change in the pH of incoming water may effect performance.

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Media Extractor

A-AE-EXT-150

SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: The SWT Media Extractor is used to remove media from a media tank. The configuration facilitates the extraction using a “Venturi” effect. By passing water across the extraction tube, a suction effect will take place and pull the media from the tank.

Materials: PVC Sch 80, pipe, valves and fittings, Poly Propylene fittings, PVC Suction Hose, 96 Gallon durable plastic receptacle, 28 Gallon Cylindrical Tank,.



Mechanics: No electrical required. By passing water across the extraction tube, a suction effect will take place and pull the media from the tank.

The user will assemble extractor tube in media tank and connect to a water supply to operate.

User Quality Checks: Routine inspection of the system is recommended. Follow all facility and regulatory policies and protocols regarding this piece of equipment. Allow only adequately trained and qualified personnel to service this equipment.

Rinse extractor pipe, tubing and waste container with water after use. Store equipment in a clean dry place. Inspect for cracks or leaks in fittings.

Factors Effecting Operation:

Extraction Pipe may obstruct with media—If nothing is flowing out of Discharge Hose, close Discharge Valve and let water flow down Extractor Pipe to clear and then open Discharge valve to create venture and continue with extraction.

Tank may empty of water before extraction is complete—Close Discharge Valve and let tank fill, then open Discharge Valve to create Venturi and continue with extraction.



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Media Loader

A-MT-LOADER

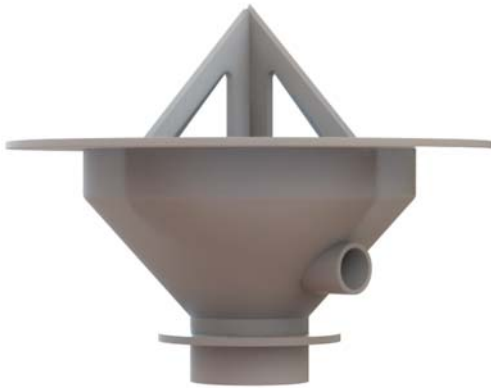
SPECIALTY WATER TECHNOLOGIES

Ultra-Pure Technologies

Function: Facilitates media loading in media tanks. Significantly reduces media dust during process.

Materials: Poly Ethylene Resin Funnel

Mechanics: Suction is applied to the media loader via a 5hp or greater vacuum cleaner. The media bag is punctured by the gusset on top of the loader and the media is drawn down into the tank.



User Quality Checks: Routine inspection of the system is recommended. Follow all facility and regulatory policies and protocols regarding this piece of equipment. Allow only adequately trained and qualified personnel to operate and service this equipment.

Routinely inspect for cracks in loader.

Factors Effecting Operation: Ensure vacuum hose is free flowing without blockage. Ensure adequate seal of loader on tank opening. May need to apply tape around loader when fitting into opening.

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