AWS SERIES

Pre-treatment System

Installation, Operation, and Maintenance Manual

Read and save these instructions

Warnings and cautions

⚠ WARNING	CAUTION
Indicates a hazardous situation that could result in death or serious injury if instructions are not followed.	Indicates a hazardous situation that could result in damage to or destruction of property if instructions are not followed.

⚠ WARNING

Attention installer
Read this manual before installing, and leave this manual with product owner. This product must be installed by qualified HVAC and electrical contractors and in compliance with local, state, federal, and governing codes. Improper installation can cause property damage, severe personal injury, or death as a result of electric shock, burns, or fire.

Anden Technical Support: 800-972-3710

Read all warnings and instructions
Read this manual before performing service or maintenance procedures on any part of the system. Failure to follow all warnings and instructions could produce the hazardous situations described, resulting in property damage, personal injury, or death.

Failure to follow the instructions in this manual can cause moisture to accumulate, which can cause bacteria and mold growth or dripping water into building spaces. Dripping water can cause property damage; bacteria and mold growth can cause illness.

If the IOM is missing, go to www.anden.com to download a replacement.

Shut down the energy source
Before performing service or maintenance procedures on any part of the system, verify that all energy sources are off. Failure to shut down the energy source could result in fire, explosion, electrical shock, and other hazardous conditions. These hazardous conditions could cause property damage, personal injury, or death.

Contact with energized circuits can cause property damage, severe personal injury or death as a result of electrical shock or fire. Do not remove electrical panel cover/door or access panels until electrical power is disconnected.

Follow the shutdown procedure in the system IOM before performing service or maintenance procedures on any part of the system.

NOTICE

Health risks
The user is responsible for operating and maintaining the provided system in accordance with city, state, and federal regulations. Please follow local health and state codes for regulations around application of water treatment systems. There is an associated risk with all water sources and the potential for bio growth, including bacterium that causes Legionnaires disease.

Anden water treatment systems, products, and components are designed, with consideration, to reduce the risk of Legionnaires disease and other similar situations. The water treatment design takes into account lower operating temperatures, minimization of stagnant water through mechanical design and flush cycles, and provides an option for UV disinfection of the RO storage water.

Inadequate installation, operation or maintenance of the water system can support the growth of bacterium.

A competent environmental, health, and safety representative should identify the risks of any interacting systems. As deemed appropriate, plans and controls should be implemented at the facility to help mitigate risk.

Warnings and cautions

WARNING	
	**Disconnect electrical power** Disconnect electrical power before installing supply wiring or performing service or maintenance procedures on any part of the system. Failure to disconnect electrical power could result in fire, electrical shock, and other hazardous conditions. These hazardous conditions could cause property damage, personal injury, or death. Contact with energized circuits can cause property damage, severe personal injury, or death as a result of electrical shock or fire. Follow the shutdown procedure in this manual before performing service or maintenance procedures on any part of the system.
	**Electric shock hazard** If the system starts up during maintenance, severe bodily injury or death from electric shock could occur. To prevent such start-up, follow the procedure below before performing service or maintenance procedures on this system: 1. Shut off all electrical power to the system using field-installed fused disconnect, and lock all power disconnect switches in OFF position. 2. Close field-installed manual water supply shut-off valve.

FILL IN THE FOLLOWING INFORMATION FOR YOUR RECORDS

Date of purchase _____

Customer's name _____

Model number _____

Serial number _____

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ATTENTION INSTALLER

Read this manual before installing.
Leave manual with product owner.

Anden® Technical Support
800-972-3710

WHERE TO FIND MORE INFORMATION

Our website:

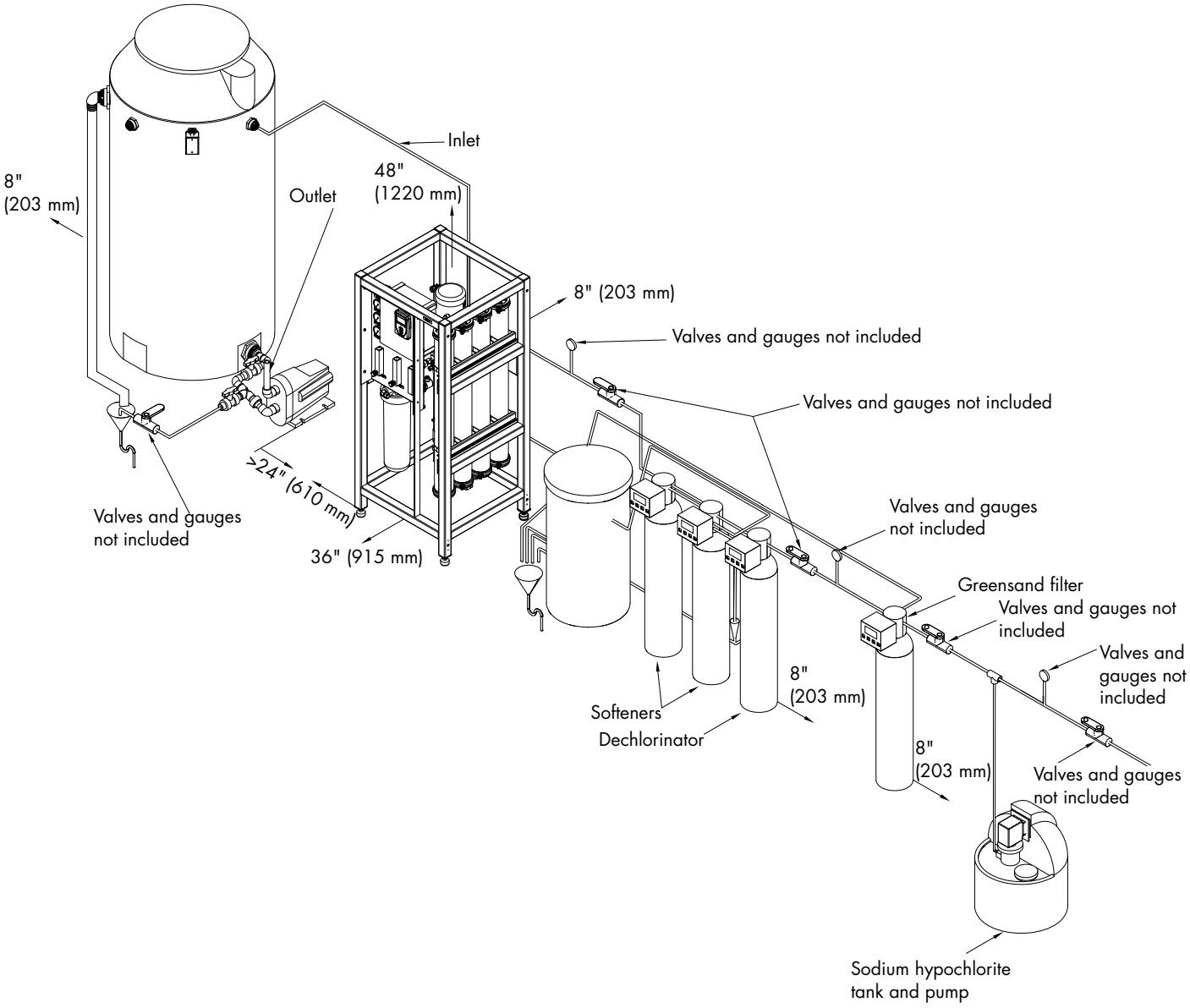
The following document is available on our web site: www.Anden.com

- Water treatment system catalog
- Product manuals

Call us at 800-972-3710

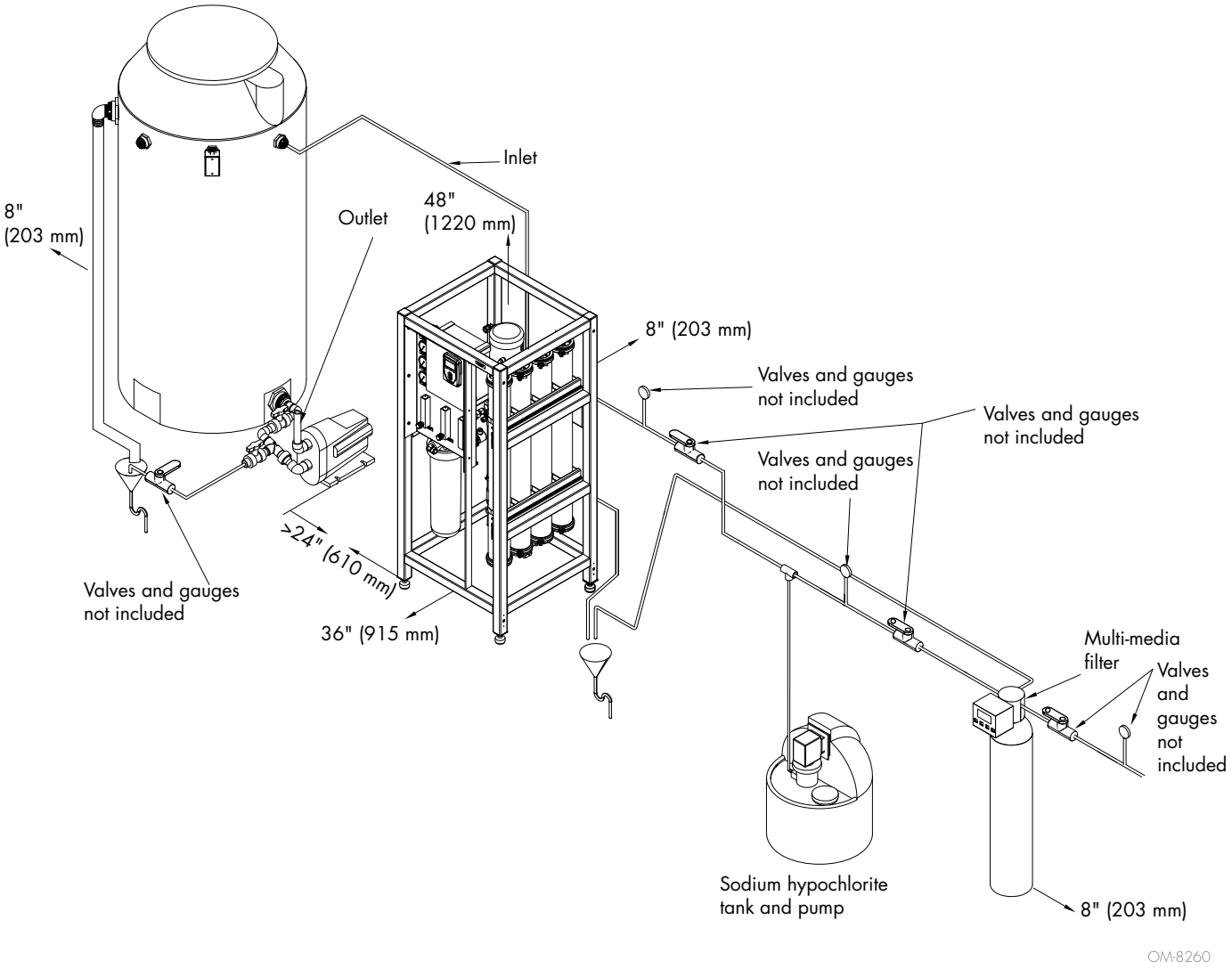
System overview

FIGURE 2-1: SYSTEM OVERVIEW



System overview

FIGURE 3-1: SYSTEM OVERVIEW



Greensand filtration specifications

The Anden AGS greensand filtration series removes iron, manganese, and hydrogen sulfide from the water that damages reverse osmosis membranes and downstream equipment.

120V, single-phase, 60 Hz, 5A electrical service is required for all models.

NOTE: 500 mA service amperage is required per control valve.

FIGURE 4-1: GREENSAND FILTER

Table 4-1:
Greensand filter specifications

Greensand model	Media volume	Connections, in /out	Drain connection	Backwash flow**	Operating weight	Shipping weight***
AGS03	1.00 ft^3 (0.028 m^3)	1" Male NPT	¾" Male NPT	7.5 gpm (28.4 L/m)	240 lbs (108.9 kg)	225 lbs (102.1 kg)
AGS06	3.50 ft^3 (0.099 m^3)	1" Male NPT	1" Male NPT	15.0 gpm (56.8 L/m)	460 lbs (208.7 kg)	385 lbs (174.6 kg)
AGS10	8.00 ft^3 (0.23 m^3)	1.5" Female NPT	1" Male NPT	25.0 gpm (94.6 L/m)	750 lbs (340.2 kg)	645 lbs (292.6 kg)
AGS19	8.00 ft^3 (0.23 m^3)	1.5" Female NPT	1" Male NPT	30.0 gpm (113.6 L/m)	1080 lbs (489.9 kg)	960 lbs (435.4 kg)

** Based on 60 to 90 psi (415 to 620 kPa) inlet pressure.
*** AGS10 and AGS19 media shipped separate, but included in shipping weight total.

Table 4-2:
Greensand + filter specifications

Greensand model	Size (Inches) diameter x height	Greensand plus media (CUFT)	Gravel (lbs)		
			1/4 x 1/8	1/4 x 1/2	1/16 x 1/8
AGS03	12x52	1.0	-	19	20
AGS06	16x65	3.5	-	33	35
AGS10	21x62	8.0	-	50	65
AGS19	24x72	8.0	-	100	100

Multi-media filtration specifications

The multi-media filter removes suspended solids from the water that foul the reverse osmosis membranes or downstream equipment.

120V, single-phase, 60 Hz, 5A electrical service is required for all models.

NOTE: 500 mA service amperage is required per control valve.

FIGURE 5-1: MULTI-MEDIA FILTRATION

Table 5-1:
Multi-media filtration specifications

Multi-media model	Media volume	Connections, in /out	Drain connection	Backwash flow**	Operating weight	Shipping weight***
AMS03	3.00 ft^3 (0.85 m^3)	1" Male NPT	¾" Male NPT	15.0 gpm (56.8 L/m)	450 lbs (204.1kg)	385 lbs (174.6 kg)
AMS06	6.00 ft^3 (0.17 m^3)	1.5" Female NPT	1" Male NPT	35.0 gpm (132.5 L/m)	750 lbs (340.2 kg)	645 lbs (292.6 kg)
AMS10	9.50 ft^3 (0.27 m^3)	1.5" Female NPT	1.5" Male NPT	50.0 gpm (189.3 L/m)	1080 lbs (489.9 kg)	960 lbs (435.4 kg)
AMS19	15.50 ft^3 (0.44 m^3)	2" Female NPT	1.5" Male NPT	75.0 gpm (283.9 L/m)	1665 lbs (755.2 kg)	1545 lbs (700.8 kg)

** Based on 60 to 90 psi (415 to 620 kPa) inlet pressure.
*** AMS06, AMS10, and AMS19 media shipped separate, but included in shipping weight total.

Table 5-2:
Multi-media filter specifications

Model	Size (Inches) diameter x height	Filter sand (CUFT)	Garnet (CUFT)	Anthracite (CUFT)	Gravel (lbs)		
					1/4 x 1/8	1/4 x 1/2	1/16 x 1/8
AMS03	14X65	0.5	0.5	2.0	-	25	28
AMS06	21x62	1.0	1.0	4.0	-	50	65
AMS10	24x72	2.0	1.5	6.0	-	100	100
AMS19	30x72	3.5	2.0	10.0	200	125	125

Dechlorinator specifications

DECHLORINATOR

The dechlorinator removes chlorine and chloramine from the water that degrades the reverse osmosis membranes.

120V, single-phase, 60 Hz, 5A electrical service is required for all dechlorinator models.

NOTE: 500 mA service amperage is required per control valve.

FIGURE 6-1: DECHLORINATOR

Table 6-1:
Dechlorinator specifications

Dechlorinator model	Media volume	Dimensions, diameter x height	Connections, in /out	Drain connection	Backwash flow**	Operating weight	Shipping weight***
ADC03	1.50 ft^3 (0.042 m^3)	10" x 54" (254 x 1372 mm)	1" Male NPT	¾" Male NPT	5.3 gpm (20.1 L/m)	225 lbs (102.1 kg)	150 lbs (68.0 kg)
ADC06	2.50 ft^3 (0.071 m^3)	13" x 54" (330 x 1372 mm)	1" Male NPT	¾" Male NPT	10.0 gpm (37.9 L/m)	300 lbs (136.1 kg)	225 lbs (102.1 kg)
ADC10	4.00 ft^3 (0.113 m^3)	16" x 65" (406 x 1651 mm)	1" Male NPT	¾" Male NPT	15.0 gpm (56.8 L/m)	460 lbs (208.7 kg)	385 lbs (174.6 kg)
ADC19	6.00 ft^3 (0.170 m^3)	21" x 62" 6(533 x 1575 mm)	1.5" Female NPT	1" Male NPT	25.0 gpm (94.6 L/m)	720 lbs (326.6 kg)	645 lbs (292.6 kg)

** Based on 60 to 90 psi (415 to 620 kPa) inlet pressure.
*** ADC19 media shipped separate, but included in shipping weight total.

Table 6-2:
Dechlorinator media/gravel quantity per model

Dechlorinator model	Size (Inches) diameter x height	Media (CUFT)	Gravel (lbs)		
			1/4 x 1/8	1/4 x 1/2	1/16 x 1/8
ADC03	10x54	1.5	15	11	13
ADC06	13x54	2.5	-	20	24
ADC10	16x65	4.0	-	42	45
ADC19	21x62	6.0	60	30	35

Single water softener specifications

WATER SOFTENER AND BRINE TANK

The water softener and brine tank are floor-mounted and exchange water hardness for sodium. The softener exchanges sodium ions for calcium and magnesium in the water. This protects downstream items from scale formation.

120V, single-phase, 60 Hz, 5A electrical service is required for all water softener models.

NOTE: 500 mA service amperage is required per control valve.

FIGURE 7-1: SINGLE WATER SOFTENER AND BRINE TANK

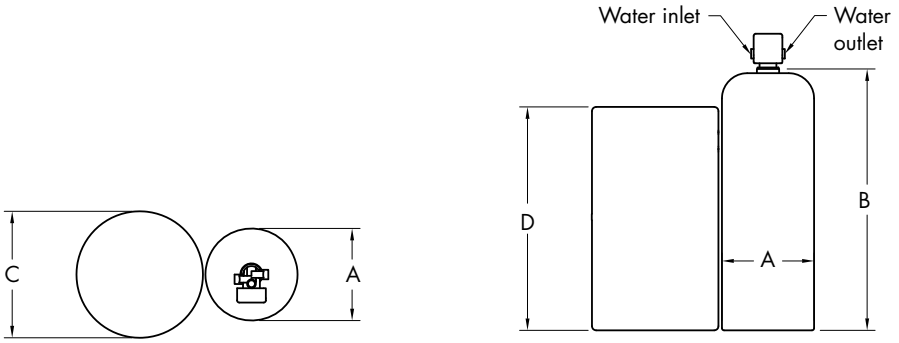


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FIGURE 7-2: SINGLE WATER SOFTENER AND BRINE TANK

Table 7-1:
Single softener and brine tank specifications

Softener model	Media volume per tank	Resin tank diameter (A) x height (B) (per tank)	Connections, in/out	Drain connection	Backwash flow**	Brine tank diameter (C) x height (D)	Operating weight	Shipping weight***
ASS03	1.50 ft^3 (0.042 m^3)	10" x 54" (254 x 1372 mm)	1" Male NPT	¾" Male NPT	2.7 gpm (10.2 L/m)	18" x 40" (457 x 1016 mm)	235 lbs (106.6 kg)	160 lbs (72.6 kg)
ASS06	2.50 ft^3 (0.071 m^3)	13" x 54" (330 x 1372 mm)	1" Male NPT	¾" Male NPT	4.2 gpm (15.9 L/m)	18" x 40" (457 x 1016 mm)	310 lbs (140.6 kg)	235 lbs (106.6 kg)
ASS10	4.00 ft^3 (0.113 m^3)	16" x 65" (406 x 1651 mm)	1" Male NPT	¾" Male NPT	6.5 gpm (24.6 L/m)	24" x 41" (610 x 1041 mm)	470 lbs (213.2 kg)	395 lbs (179.2 kg)
ASS19	6.00 ft^3 (0.170 m^3)	21" x 62" (533 x 1575 mm)	1.5" Female NPT	1" Male NPT	12.0 gpm (45.4 L/m)	30" x 48" (762 x 1219 mm)	730 lbs (331.1 kg)	655 lbs (297.1 kg)

** Based on 60 to 90 psi (415 to 620 kPa) inlet pressure.
*** ASS19 media shipped separate, but included in shipping weight total.

Duplex water softener specifications

WATER SOFTENER AND BRINE TANK

The water softener and brine tank are floor-mounted and exchange water hardness for sodium. The softener exchanges sodium ions for calcium and magnesium in the water. This protects downstream items from scale formation.

120V, single-phase, 60 Hz, 5A electrical service is required for all water softener models.

NOTE: 500 mA service amperage is required per control valve.

FIGURE 8-1: DUPLEX WATER SOFTENER AND BRINE TANK

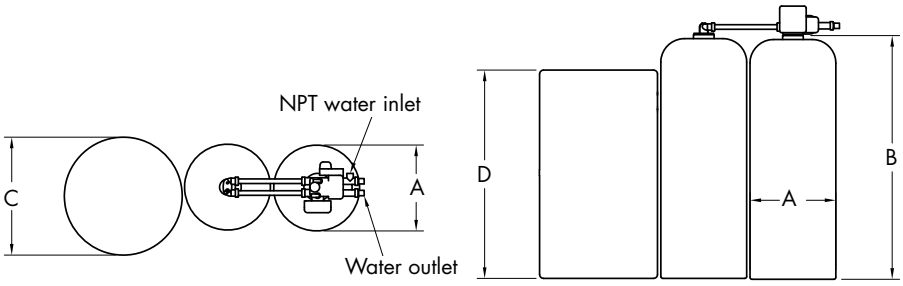

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FIGURE 8-1: DUPLEX WATER SOFTENER AND BRINE TANK

Duplex water softener specifications

Table 9-1:
Duplex softener and brine tank specifications

Softener model*	Media volume per tank	Resin tank diameter (A) x height (B) (per tank)	Connections, in/out	Drain connection	Backwash flow*	Brine tank diameter (C) x height (D)	Operating weight	Shipping weight
ASD03	1.50 ft^3 (0.042 m^3)	10" x 54" (254 x 1372 mm)	1" Male NPT	¾" Male NPT	2.7 gpm (10.2 L/m)	18" x 40" (457 x 1016 mm)	460 lbs (208.7 kg)	310 lbs (140.6 kg)
ASD06	2.50 ft^3 (0.071 m^3)	13" x 54" (330 x 1372 mm)	1" Male NPT	¾" Male NPT	4.2 gpm (15.9 L/m)	18" x 40" (457 x 1016 mm)	610 lbs (276.7 kg)	460 lbs (208.7 kg)
ASD10	4.00 ft^3 (0.113 m^3)	16" x 65" (406 x 1651 mm)	1" Male NPT	¾" Male NPT	6.5 gpm (24.6 L/m)	24" x 41" (610 x 1041 mm)	928 lbs (420.9 kg)	778 lbs (352.9 kg)
ASD19**	6.00 ft^3 (0.170 m^3)	21" x 62" (533 x 1575 mm)	1.5" Female NPT	1" Male NPT	12.0 gpm (45.4 L/m)	30" x 48" (762 x 1219 mm)	1450 lbs (657.8 kg)	1300 lbs (589.7 kg)

* Based on 60 to 90 psi (415 to 620 kPa) inlet pressure.
** Media shipped loose for Model ASD19.

Table 9-2:
Softener resin/gravel quantity per model (single and duplex)

Softener model	Size (Inches) diameter x height	Media (CUFT)	Gravel 1/4 x 1/8	Gravel 1/4 x 1/2	Gravel 1/16 x 1/8
ASS03	10x54	1.5	-	14	10
ASS06	13x54	2.5	-	20	23
ASS10	16x65	4.0	-	33	35
ASS19	21x62	6.0	-	50	65
ASD03	10x54	1.5	-	14	10
ASD06	13x54	2.5	-	20	23
ASD10	16x65	4.0	-	33	35
ASD19	21x62	6.0	-	50	65

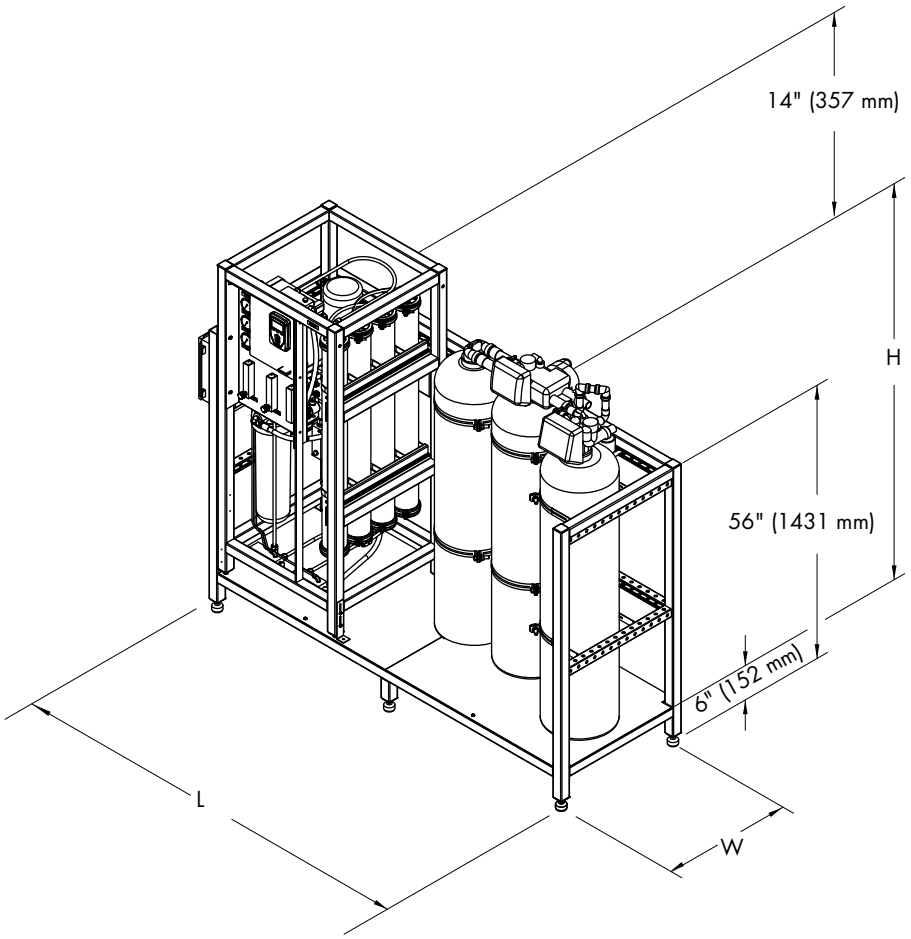
Optional pretreatment skid mounting

SELECT PRETREATMENT SKID MOUNTING FOR EASE OF INSTALLATION

Reduce installation cost and time by having pretreatment components come pre-assembled. The Anden water softener(s), brine tank, and dechlorinator have a single point water inlet, water outlet, and power for all components.

- Save time and cost on installation
- Maximize clearance
- Ensure proper installation and operation

FIGURE 10-1: PRETREATMENT SKID



Note: Duplex water softeners for 21-inch diameter and larger must have media installed in the field.

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Table 10-1:
Pretreatment valve head voltages

AC adapter	U.S.
Supply voltage	120 VAC
Supply frequency	60 Hz
Output voltage	12 VAC
Output current	500 mA

Table 10-2:
Dimensions

Frame	Length (L)	Width (W)	Height (H)
Small	72" (1829 mm)	28" (711 mm)	80" (2032 mm)
Medium	88" (2235 mm)	28" (711 mm)	90" (2296 mm)
Large	106" (2692 mm)	30" (762 mm)	90" (2296 mm)

Optional pretreatment skid mounting

FIGURE 11-1: PRETREATMENT SKID WITH WELL WATER SKID

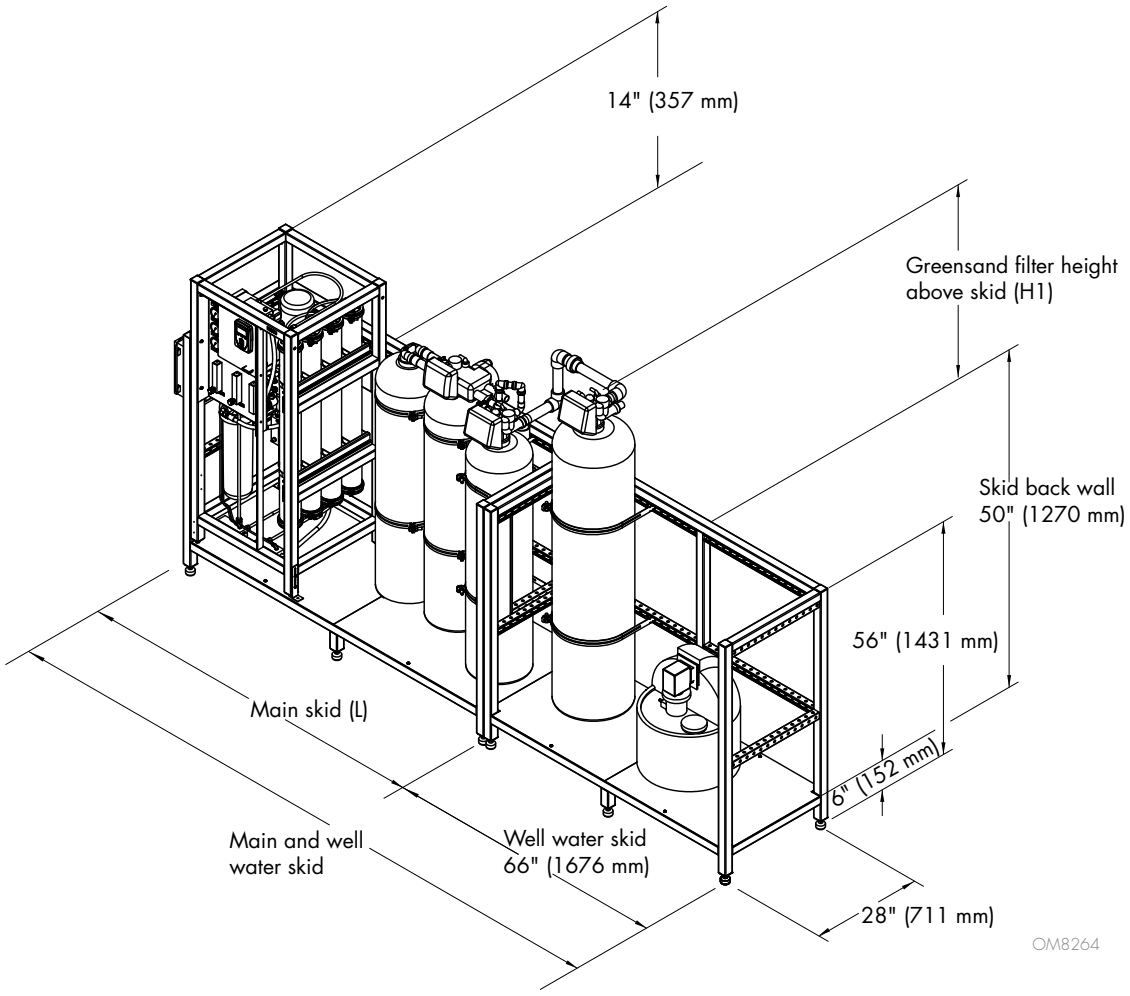
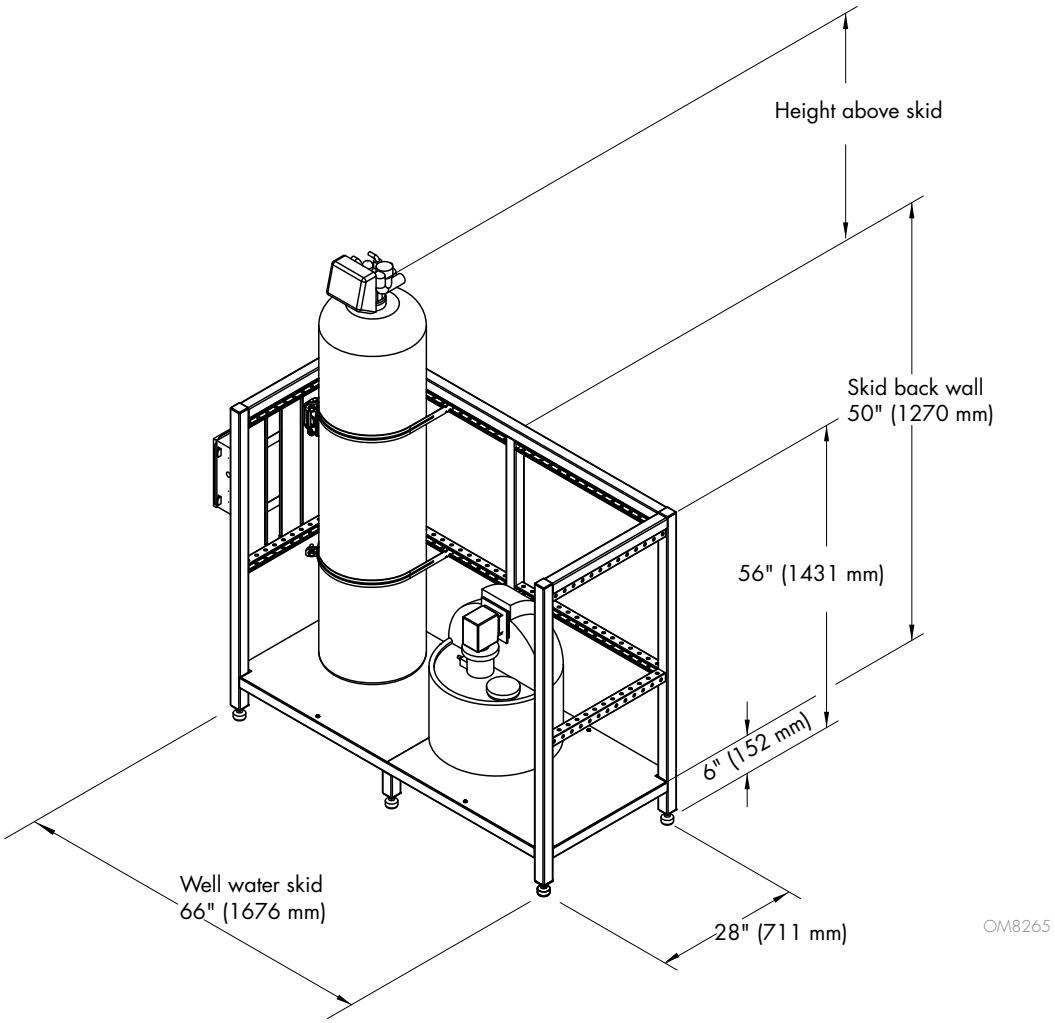


Table 11-1:
Well water skid

Greensand filter	Chemical feed	Length (inches)	Width (inches)	Height (inches)		Water connection in (inches)	Water connection out (inches)
				Height (total)	Height above skid (H1)		
AGS03	AWP100	66	28	66	16	1	1
	AWP101						
AGS06	AWP100			79	29	1	1
	AWP101						
AGS10	AWP100			76	26	1.5	1.5
	AWP101						
AGS19	AWP100			86	36	1.5	1.5
	AWP101						

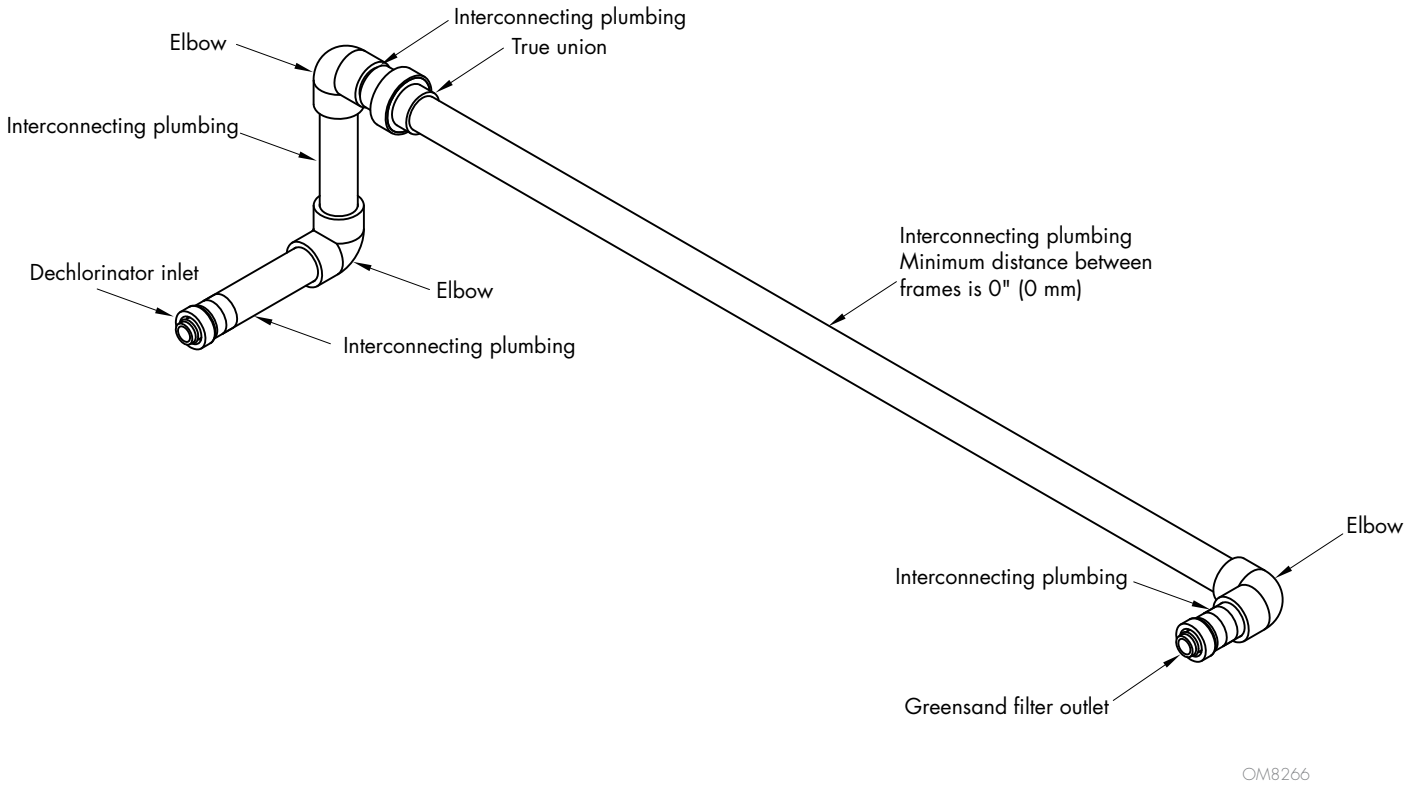
Optional pretreatment skid mounting

FIGURE 12-1: WELL WATER SKID



Optional pretreatment skid mounting

FIGURE 13-1: WELL WATER SKID TO MAIN PRETREATMENT (EXAMPLE)



Pretreatment installation

TOOLS NEEDED

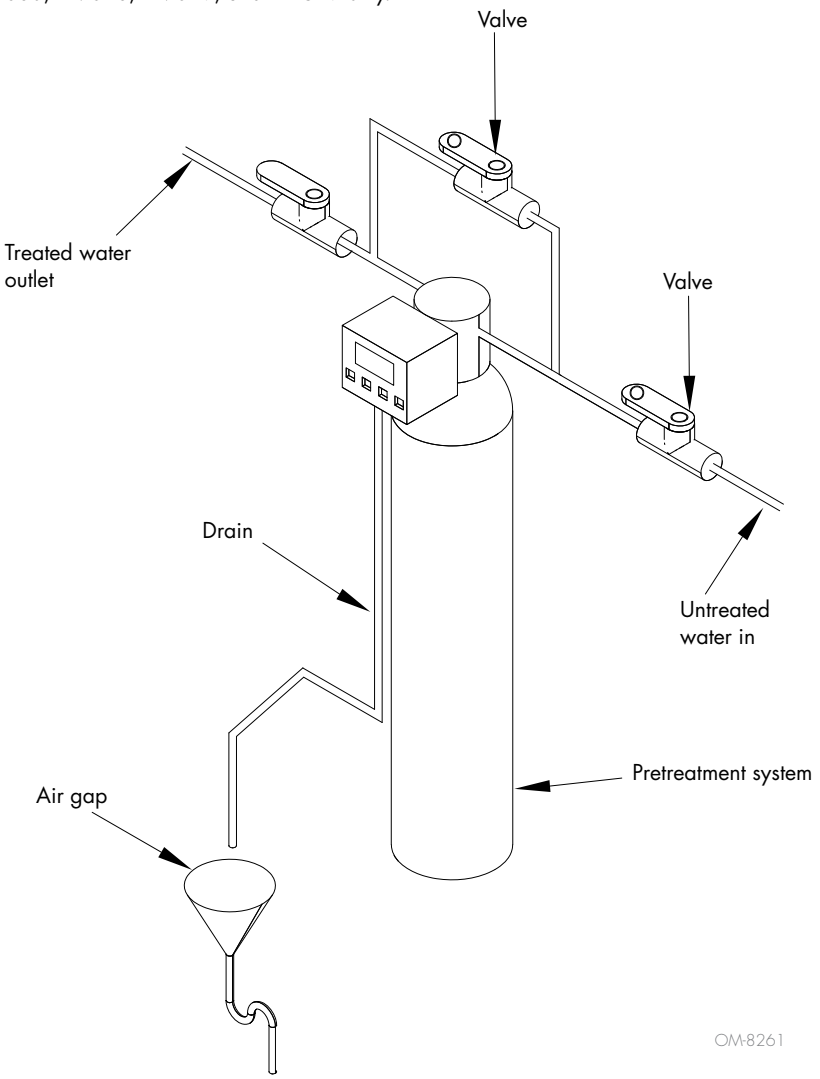
- Channel locks
- Screwdriver
- Teflon tape
- Knife
- Two adjustable wrenches

INSTALLATION

During the installation of any of the types of systems, please install the bypass valve (see Figure 14-2) or a set of 3 valves hard piped to allow bypass (see Figure 14-1). This allows the water to be turned off to the tank and keeps the system operating.

FIGURE 14-1: BYPASS VALVE FOR 21" OR LARGER SYSTEMS

For Models ASS19, ASD19, AGS10, AGS19, AMS06, AMS10, AMS19, and ADC19 only.



IMPORTANT

Read all manuals shipped with product. Reference control valve manual shipped with unit for setup, programming and operation.

FIGURE 14-2: 1" BYPASS SYSTEM VALVE

For Models:
ASS03, ASS06, ASS10,
ASD03, ASD06, ASD10,
AGS03, AGS06,
AMS03,
ADC03, ADC06, ADC10

FIGURE 14-3: CONTROL VALVE

FIGURE 14-4: WRENCH TOOL

Pretreatment installation

ELECTRICAL INSTALLATION

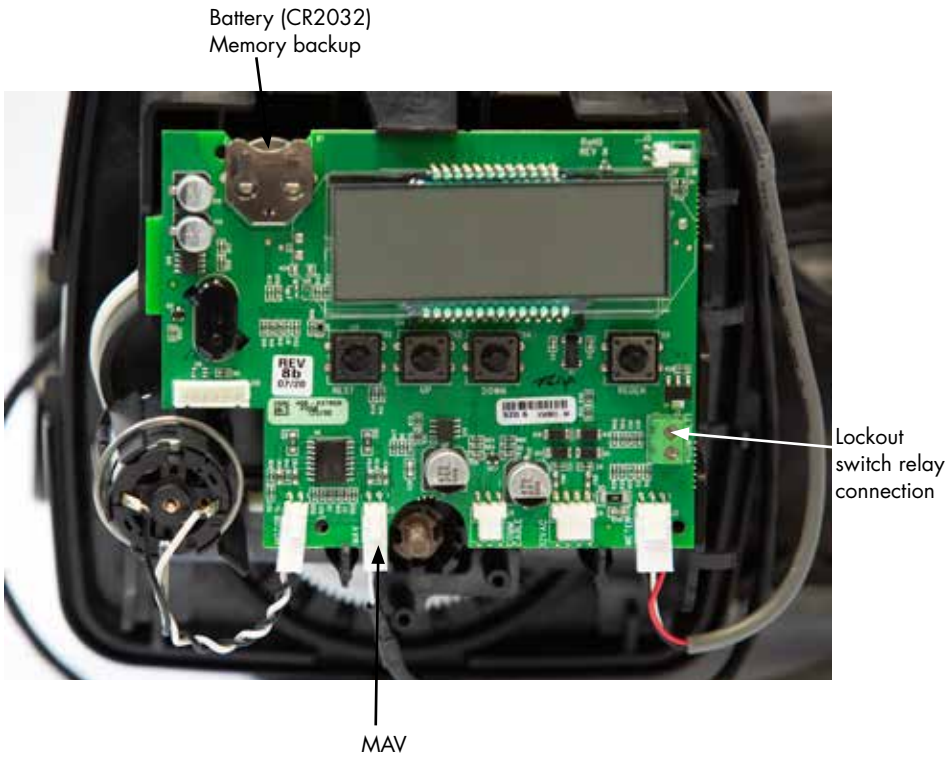
The control valve and fittings are not designed to support the weight of the system or the plumbing.

- Teflon tape is recommended to be used on all threads. Do not use pipe dope, as it may break down the plastics in the control valve.
- Allow one foot of clearance to service valve Model WS1.0 and WS1.5 valves and two feet of clearance to service valve Model WS2 and WS2QC valves.
- The valve will withstand transportation and storage temperatures of -13°F (-25 °C) to 131°F (55 °C) and for short periods up to 158°F (70 °C). If valve has been exposed to freezing conditions let valve warm up to room temperature before running water through it. The valve has been packaged to prevent damage from the effects of normal humidity, vibration and shock.

LOCKOUT SWITCH

Anden pretreatment filters have a RO lockout switch if it is desired to lockout the RO system to prevent any hard water passing to the RO system when the filters are in backwash. See Figure 15-1 for connections to the RO system lockout terminals.

FIGURE 15-1: LOCKOUT SWITCH WIRING



IMPORTANT

Read all manuals shipped with product. Reference control valve manual shipped with unit for operation and setup.

CAUTION

Do not use Vaseline, oils, other hydrocarbon lubricants or spray silicone anywhere. A silicone lubricant may be used on black o-rings but is not necessary.

CAUTION

Hydrocarbons such as kerosene, benzene, gasoline, etc., may damage products that contain o-rings or plastic components. Exposure to such hydrocarbons may cause the products to leak. Do not use the products(s) contained in this document on water supplies that contain hydrocarbons such as kerosene, benzene, gasoline, etc.

CAUTION

Anden water meters should not be used as the primary monitoring device for critical or health effect applications.

Site requirements

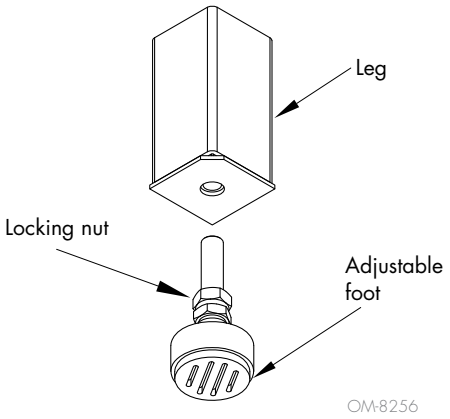
SITE REQUIREMENTS

1. The plug in Power Adapter is for dry locations only, and should be connected to an uninterrupted outlet installed within 15' (4.57 m) of the water conditioner. If the Power Adapter cord has not yet been connected to the control valve, remove the control valve cover and the drive bracket, and thread the Power Adapter cord through the hole in the back plate. Reinstall the drive bracket. Weave the cord through the hooks on the right hand side of the drive bracket and connect the end to the four-prong connector on the printed circuit board. Replace the cover, and plug the Power Adapter into an uninterrupted outlet.
2. Place the tank on a firm, level surface. For skidded systems, use the adjustable skid leveling feet to level the system. See Figure 16-1.
3. All plumbing should be done in accordance with local codes.
4. Do not locate unit where it or its connections (including the drain and overflow lines) will ever be subjected to room temperatures below 40°F (4° C) or above 100°F (38°C).
5. INLET/OUTLET PLUMBING: Connect to a supply line downstream of system. Install an inlet shutoff valve and plumb to the unit's inlet. Installation of a bypass valve is recommended. If using plastic fittings, ground the water conditioner per local electrical codes.

   NOTE: Do not install any water conditioner with less than 10' (3.05 m) of piping between its outlet and the inlet of a water heater.

   If a water meter is used, install the water meter on the outlet side of the control valve. The turbine assembly may be oriented in any direction, but is usually oriented pointing up to reduce drainage out of the pipe during service.
6. Locate the water conditioner so the distance between the drain and the water conditioner is as short as possible. All units are shipped with a drain line flow control washer installed. Correctly size the drain line and install an appropriately sized drain line flow control, if needed to be different from installed drain line float control. Leave at least 6" (152.4mm) between the drain line flow control fitting and the solder joints to prevent heat from damaging the flow control. Avoid elevating the drain line above the control valve where possible. Discharge the drain line through an air gap to a receptacle in accordance with local plumbing codes.

FIGURE 16-1: SKID LEVELING FEET



IMPORTANT

Never insert a drain line directly into a drain, sewer line or trap. Always allow an air gap between the drain line an the receptacle to prevent back siphonage.

Site requirements

7. Brine tanks should be accessible for easy refilling. If the control valve is to be used to regenerate the water conditioner with brine (saturated salt solution) or other regenerants, use a polyethylene tube to connect the brine valve contained in the regenerant tank to the regenerant port on the control valve. It is recommended the brine valve contain a safety float. The 1.5" control valve's regenerant port has a ½" fitting.

   The 2" control valve regenerant port has a 1" threaded connection. To ensure acceptable operation of the injectors, use 1" pipe to connect to the brine tank.

   An overflow drain line from the regenerant tank that discharges into an acceptable drain is recommended, as a regenerant overflow could damage furnishings or the building structure. Connect a line to the overflow fitting on the regenerant tank. If an overflow fitting is not already installed on the regenerant tank, install one. Do not elevate the overflow drain line. Discharge the overflow drain line through an air gap to a receptacle in accordance with local plumbing codes.

Start-up checklist

If an item in the Start-up checklist below does not apply to your system, skip to the next item and continue the process.

- ☐ Read this manual and all other information that was provided with your system.
- ☐ Verify that all field wiring is done according to the instructions in this manual and in the unit wiring diagram.
- ☐ Confirm that proper grounding and an approved earth ground are provided.
- ☐ Slowly turn on the water supply and confirm there are no leaks.
- ☐ Add water to the brine tank. 1/3 water (12-inches) water and 2/3 full of salt.
- ☐ Systems with tank-style carbon filter with control valve: Ensure that elastomeric Drain Line Flow Control restrictor washer is installed correctly in drain outlet plumbing assembly. This is required to prevent overflow and potential carry-over of carbon to the drain system.
- ☐ See "Dechlorinator" on Page 6 of this manual.
- ☐ Inspect to insure that no flexible plumbing lines have been kinked or damaged during installation.

System startup

1. After installation is completed, turn on the supply water to check for leaks.
2. Fully open a cold water faucet downstream of the system.
3. Allow water to run until clear.
4. Close the cold water faucet.
5. Turn off the supply water.
6. The system is now ready for startup.

SYSTEM STARTUP

7. Initiate manual regeneration of the control valve to regenerate: press the REGEN button for three seconds.
8. Ensure drain line flow remains steady for 10 minutes or until clear. Step through the different regeneration cycles by pressing the REGEN button again.
9. Observe regeneration effluent and continue to regenerate until discharge is clear. Steps 7 and 8 may need to be repeated as necessary.
10. Observe that the brine tank is filling during brine tank refill cycle.
11. Install brine tank overflow line. Attach plastic tubing to the fittings from the brine tank and run to an open drain. This drain line will not be under pressure. Do not tie into the backwash drain line. This line should be higher than the normal drain line, and must be a separate line from fitting to drain. It is a safety overflow drain and will not be in use during normal operation.
12. Observe that the valve advances through the different regeneration cycles and ends in service. Step through the different regeneration cycles by pressing REGEN.
13. Fill brine tank with salt. Salt may be sodium chloride (NaCl) or potassium chloride (KCl). Fill tank to only 2/3 full. Note: The brine tank holds a large quantity of salt, so you will not need to refill at frequent intervals. Refilling the brine tank with salt should be performed after your system is successfully installed and has been operating trouble-free. Brine tank should be refilled with salt at least eight hours before the next generation is performed.
14. Review Tables 22-1 and 23-1 to ensure settings are properly programmed before placing the softener in service.

Plumbing and wiring for dual softeners

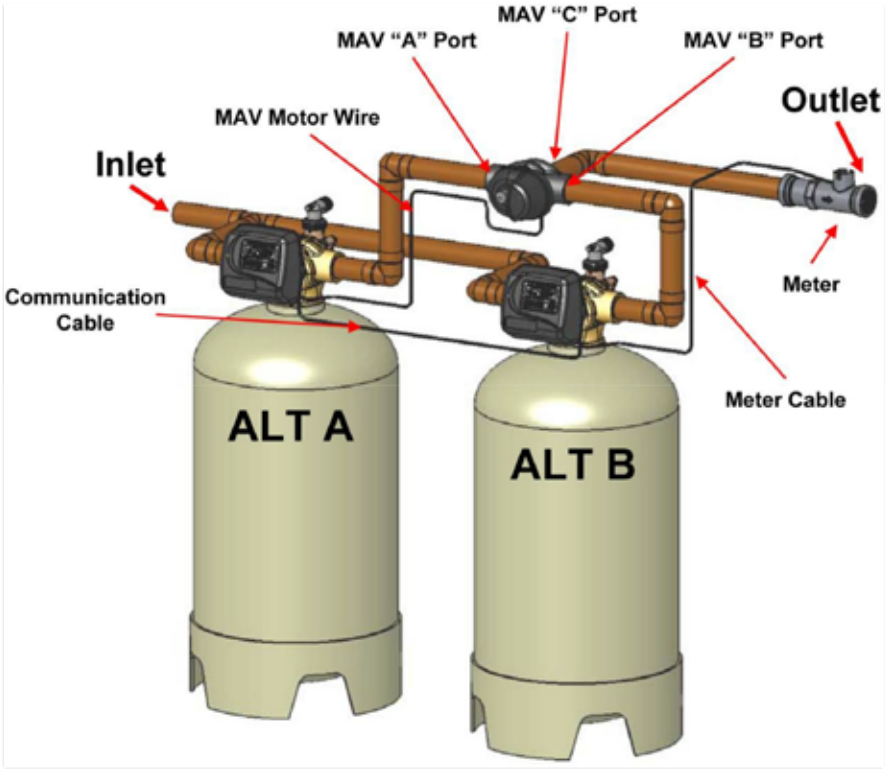
Notes:

- All plumbing is to be done in accordance with state and local codes.
- The control valve, fittings and/or bypass are designed to accommodate minor plumbing misalignments but are not designed to support the weight of a system or the plumbing.
- Connect to a supply line downstream of system. Install an inlet shutoff valve and plumb them to the unit's inlet. Installation of a bypass valve is recommended. If using plastic fittings, ground the water conditioner per local electrical codes.
- Do not use pipe dope or other sealant on threads. Use teflon tape on threaded inlet, outlet and drain fittings.

1. Plumb the Motorized Alternating Valve (MAV) according to Figure 20-1. Note: Ensure that the valve labeled "Alt A" is connected to the "A" port on the MAV, and the valve labeled "Alt B" is connected to the "B" port.
2. Install connecting piping between raw water source and input pipe on control valve.
3. Install drain line from control valve to a free flowing drain. Solder joints near the drain must be done prior to connecting the drain line flow control fitting. Leave at least 6" (152.4mm) between the drain line flow control fitting and the solder joints to prevent heat from damaging the flow control. Avoid elevating the drain line above the control valve where possible. Discharge the drain line through an air gap to a receptacle in accordance with local plumbing codes.

Important: Never insert a drain line directly into a drain, sewer line or trap. Always allow an air gap between the drain line and the receptacle to prevent back siphonage.

FIGURE 20-1: PLUMBING THE MOTORIZED ALTERNATING VALVE



Plumbing and wiring for dual softeners

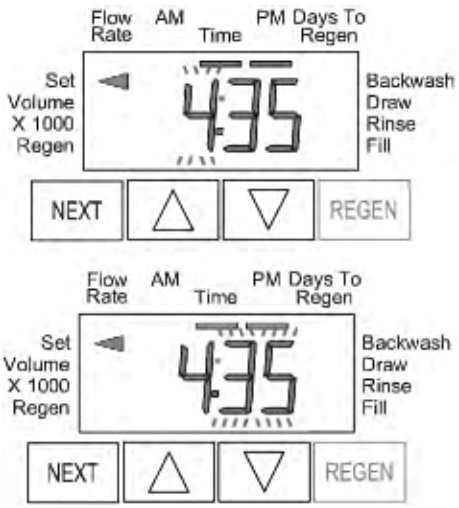
4. Install the water meter on the outlet side of the control valve. The meter may be threaded directly into the valve or may be plumbed separately downstream of the unit. Ensure the arrow on the meter body is going the same direction as the water flow. The turbine assembly may be oriented in any direction, but is usually oriented pointing up to reduce drainage out of the pipe during service. Meter can be installed horizontally or vertically.
5. Install piping between meter output and point of use.
6. Use a tee to install Brine/Refill line between brine tank and regenerant line.
7. Install an overflow drain line from the regenerant tank. Connect a line to the 1" overflow fitting on the regenerant tank. Do not elevate the overflow drain line. Discharge the overflow drain line through an air gap to a receptacle in accordance with local plumbing codes.

VALVE WIRING

1. Connect MAV Motor Wire & Interconnect cable to valve head Alt A:
   - On the backside of the valve, remove the strain relief cover with a screwdriver.
   - Remove the cover of the valve by pulling out on the release tabs located on each side of the cover.
   - Feed the MAV motor wire and interconnect (communication) cable through the hole in the back of the valve.
   - Connect the MAV motor wire to the two pin connector labeled "DRIVE" on the PC Board. (See Figure 15-1).
   - Connect the interconnect (communication) cable to the three pin connector labelled "INTERCONNECT CABLE" on the PC Board.
   - After connecting the cables, weave the wires through the strain relief on the backside of the valve, and replace the strain relief cover and screw. Replace the valve cover.
2. Connect MAV Cables to valve head Alt B:
   - On the backside of the valve, remove the strain relief cover with a screwdriver.
   - Remove the cover of the valve by pulling out on the release tabs located on each side of the cover.
   - Feed the other end of the interconnect (communication) cable & the meter cable through the hole in the back of the valve.
   - Connect the interconnect cable to the three pin connector labelled "INTERCONNECT CABLE" on the PC Board. (See Figure 15-1).
   - After connecting the cables, weave the wires through the strain relief on the backside of the valve, and replace the strain relief cover and screw. Replace the valve cover.
   - Ensure meter cable is connected to the meter assembly.

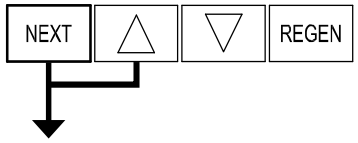
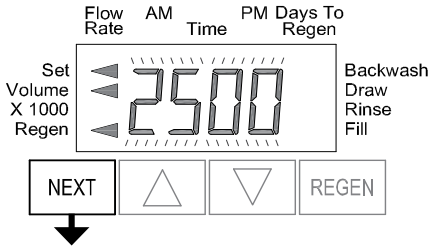
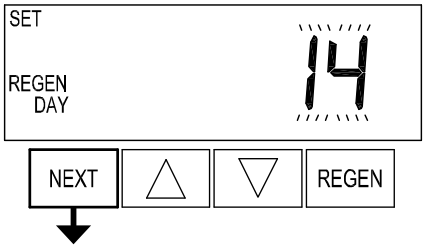
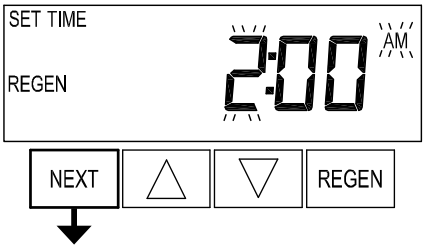
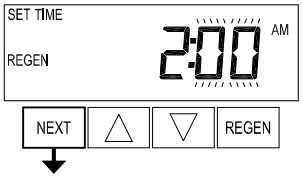
Softener, dechlorinator, multi-media, and greensand filter start-up

Table 22-1:
Set time of day

Buttons	Description
	1. Press NEXT until the time of day screen is displayed. 2. Press and hold the ↑ or ↓ until the SET indicator is displayed and the hour flashes. 3. Press the ↑ or ↓ until the correct hour is displayed. 4. Press NEXT. The minutes will flash. 5. Press ↑ or ↓ until the correct minute is displayed. 6. Press NEXT to return to the display screen. Note: In the event of a prolonged power outage, time of day flashes, indicating that it needs to be reset. All other information will be stored in memory no matter how long the power outage. Complete the steps above to reset the time of day.

Softener, dechlorinator, multi-media, and greensand filter start-up

Table 23-1:
Softener start-up

Buttons	Description
	To enter Installer Display press NEXT and ↑ simultaneously for about 5 seconds and release.
	Press ↑ or ↓ to enter the volumetric capacity in gallons. See Table 24-1. Press NEXT to go to the Day Override screen. Press REGEN to return to previous step.
	Day Override: When volume capacity is set to "oFF", sets the number of days between regenerations. When volume capacity is set to AUTO or to a volume, sets the maximum number of days between regenerations. If value set to "oFF", regeneration initiation is triggered solely by volume used. If value is set in days (allowable range from 1 to 28) regeneration initiation will be called for on that day regardless of actual water usage. Set Day Override using ↑ or ↓: • number of days between regeneration (1 to 28); or • "oFF". Press NEXT. Press REGEN to return to previous step.
	Next Regeneration Time (hour): Set the hour of day for regeneration using ↑ or ↓. The default time is 2:00. This display will show "REGEN on 0 GAL" if "on 0" is selected in Set Regeneration Time Press NEXT. Press REGEN to return to previous step.
 **EXIT INSTALLER DISPLAY SETTINGS**	Next Regeneration Time (minutes): Set the minutes of day for regeneration using ↑ or ↓. Press NEXT to exit Installer Display Settings. Press REGEN to return to previous step.

Softener, dechlorinator, multi-media, and greensand filter start-up

SALT USAGE AND GRAINS CAPACITY SETTINGS

The softener can be set to use different amounts of salt per regeneration. The higher the quantity of salt used, the higher the resin's hardness removing capacity will be. Anden recommends using 10lbs/cu. ft. Alternatively, higher salt usage may be set in order to maximize resin capacity between regenerations, or a lower salt usage settings can be used to reduce salt consumption, but this will result in more frequent regeneration.

- To find volume capacity:
  - Find the model and desired salt setting from Table 24-1. Anden recommends using 10lbs/cu. ft. to find the total grains capacity for the tank model.
  - Divide the grain capacity (of the model selected) by the incoming grains per gallon (gpg) of hardness in the feed water. (Example: Model ASS06. The incoming hardness is 10 grains per gallon (gpg). The ASS06, at a salt dosage setting of 10 lbs salt/ cu ft of resin, has a total capacity of 87,000 grains. The volume throughput equals 58,000 (grains) / 10 (grains/gallon) = 5,800 gallons.
- To find brine fill time:
  - Use number from Brine fill time column for the model number in the appropriate salt settings column.

Water softener salt quantity estimate

Total brine tank volume (cubic inches)= $\pi r^2 h$

- r = radius of the brine tank in inches
- h = height of the brine tank in inches

Pounds of salt needed =
2/3 x (Brine Tank Volume / 1354) x 28

Example

For a ASS06 softener, the pounds of salt needed = 2/3 x (π x 81 x 40 / 1354) x 28 = 110 lbs

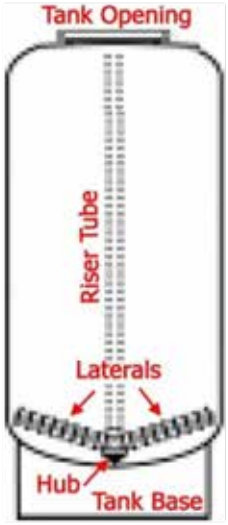
Table 24-1:
Capacity (per tank) at various pounds of salt per regeneration settings

Model	15 lbs/cu. ft.			10 lbs/cu. ft. (Recommended)			7.5 lbs/cu. ft.			5 lbs/cu. ft.		
	Grains capacity	Salt used per regen (pounds)	Brine fill time (minutes)	Grains capacity	Salt used per regen	Brine fill time (minutes)	Grains capacity	Salt used per regen	Brine fill time (minutes)	Grains capacity	Salt used per regen	Brine fill time (minutes)
ASS03	37,500	18.8	12.5	36,250	12.5	8.3	32,125	9.4	6.3	25,000	6.3	4.1
ASS06	60,000	30.0	20.0	58,000	20.0	13.2	51,400	15.0	10.0	40,000	10.0	6.6
ASS10	105,000	52.5	35.0	101,500	35.0	23.1	89,950	26.3	17.5	70,000	17.5	11.6
ASS19	198,000	90.0	60.0	174,000	60.0	40.0	152,400	45.0	30.0	120,000	30.0	20.0

Loading the carbon media

LOADING THE CARBON MEDIA

FIGURE 25-1: LOADING THE MEDIA



1. Place tank on a level, solid surface in the correct position for installation. Lift the riser tube from the tank, keeping the attached hub within the opening of the tank. Within the tank, assemble the laterals onto the hub, twisting each lateral into the hub to lock securely. Gently lower the assembly to the bottom of the tank. The top of the riser tube should be about level with the top of the tank. (See Figure 25-1).
2. The "riser tube" inside the media/resin tank delivers treated water to your control valve. It will need to be temporarily covered with tape on the top end to prevent anything from falling down inside the tube during loading.
3. Step back and look at the tank to make sure it is standing straight, and not tilted. The black base on the bottom of the tank should also be straightened before filling the tank. If your tank is tilted, simply pick up the tank 2-3 inches off the floor and drop it gently (but firmly) down, favoring the side of the base that needs to be adjusted.
4. Before loading the media, fill the tank with 2-3 feet of water (or 1/3 full, depending on the tank size), to soften the fall of the rocks and prevent damage to the distributor. To load the media, use a funnel in the top of the media tank with the riser tube still inside. Make sure the riser tube is covered with tape to keep media out.
5. Load gravel from largest to smallest before adding the media of each pretreatment item.
6. Scoop the media into the funnel, slowly letting it fall down inside the media tank around the riser tube. Fill the tank with the media provided, pouring the media in the following order (1st will end up on the bottom of the tank, last will end up at the top of the tank, etc.). Note: The gravel will have covered and is approximately 1"above the distributor. The tank will be approximately ½ - 2/3 full after loading is complete.
   - I. Gravel – YMGRVL11618 – 1 CF (100 lbs.) per bag
   - II. Gravel ¼" x 1/8" – YMGRVL1418 – 0.5 CF (50 lbs) per bag
   - III. YMC1240RCOAL – 1 CF (27.5 lbs.) per bag
7. Remove the funnel from the top of the tank, and the tape from the end of the riser tube. Brush any loose media or resin off the top opening of the tank.
8. The bottom of the control valve has an opening with O-rings inside; lubricate the O-ring with a non-petroleum based lubricant. Position the valve over the top of the media tank, making sure the top of the riser tube inserts inside the opening in the bottom of the valve.
9. Screw the valve down into the media tank. Another person should hold the tank as the valve is being snugly tightened onto the tank. Do not over-tighten. Tighten until snug, tighten a bit more, then Stop. The large o-ring will seal itself.

Table 25-1:
Carbon media quantity per model

Carbon model	I. Gravel 3/4 x 1/2	II. Gravel 1/4 x 1/2	III. Gravel 1/16 x 1/8	IV. Carbon
ADC19	30 lbs	15 lbs	17 lbs	6 CF (165 lbs)

Loading the water softener media

LOADING THE WATER SOFTENER MEDIA

1. Place each resin tank on a level, solid surface in the correct position for installation, taking note of correct ALT A and ALT B tank positions. Lift the riser tube from the tank, keeping the attached hub within the opening of the tank. Within the tank, assemble the laterals onto the hub, twisting each lateral into the hub to lock securely. Gently lower the assembly to the bottom of the tank. The top of the riser tube should be about level with the top of the tank. (See Figure 25-1).
2. The "riser tube" inside the media/resin tank delivers treated water to your control valve. It will need to be temporarily covered with tape on the top end to prevent anything from falling down inside the tube during loading.
3. Step back and look at the tank to make sure it is standing straight, and not tilted. The black base on the bottom of the tank should also be straightened before filling the tank. If your tank is tilted, simply pick up the tank 2-3 inches off the floor and drop it gently (but firmly) down, favoring the side of the base that needs to be adjusted.
4. Before loading the media, fill the tank with 2-3 feet of water (or 1/3 full, depending on the tank size), to soften the fall of the rocks and prevent damage to the distributor. To load the media, use a funnel in the top of the media tank with the riser tube still inside. Make sure the riser tube is covered with tape to keep media out.
5. Scoop the media into the funnel, slowly letting it fall down inside the media tank around the riser tube. Fill the tank with the media provided, pouring the media in the following order (1st will end up on the bottom of the tank, last will end up at the top of the tank, etc.). Note: The tank will be approximately ½ - 2/3 full after loading is complete. Refer to Table 26-1 for the proper quantities of each media.
   - I. Gravel – YMGRVL11618 – 1 CF (100 lbs.) per bag
   - II. Gravel ¼" × 1/8" – YMGRVL1418 – 0.5 CF (50 lbs) per bag
   - III. Resin - CGS - 1CF (50 lbs) per bag
6. Remove the funnel from the top of the tank, and the tape from the end of the riser tube. Brush any loose media or resin off the top opening of the tank.
7. The bottom of the control valve has an opening with O-rings inside; lubricate the O-ring with a non-petroleum based lubricant. Position the valve over the top of the media tank, making sure the top of the riser tube inserts inside the opening in the bottom of the valve.
8. Screw the valve down into the media tank. Another person should hold the tank as the valve is being snugly tightened onto the tank. Do not over-tighten. Tighten until snug, tighten a bit more, then Stop. The large o-ring will seal itself.

Table 26-1:
Water softener resin and media quantity per model

Water softener model	I. Gravel 3/4 x 1/2	II. Gravel 1/4 x 1/2	III. Gravel 1/16 x 1/8	IV. Softening resin (per tank)
ASS19	–	50 lbs	65 lbs	6 CF (300 lbs)

Inspection and maintenance

GREENSAND

WEEKLY

- Perform a water test (site dependant). See page 33 for instructions.
- Complete a backwash cycle on system.

ANNUALLY

- Inspect tank, valve, and connections for leaks or breakage.
- Replace media every two years depending on the quality of the feed water supply.

MULTI-MEDIA

WEEKLY

- Perform a water test (site dependant). See page 33 for instructions.
- Complete a backwash cycle on system.

ANNUALLY

- Inspect tank, valve, and connections for leaks or breakage.
- Replace media every two years depending on the quality of the feed water supply.

WATER SOFTENER

WEEKLY

Check brine tank salt level at least weekly. Maintain salt level above the half-full mark at all times.

Note: Use pelletized or pulverized salt. Pelletized salt is the most common. It takes longer to dissolve than pulverized salt. Use pulverized salt because it dissolves easily.

ANNUALLY

- Inspect tank, valve, and connections for leaks or breakage.
- Have a water sample taken downstream from water softener to check for hardness. If water hardness is 15 ppm or greater, make sure there is salt in brine tank. If there is salt, and water hardness if 15 ppm or greater, contact Anden for water softener resin replacement.

DECHLORINATOR

MONTHLY

- Have a water sample taken after dechlorinator to check for chlorine. If 2 ppm or greater, replace carbon media.

ANNUALLY

- Inspect tank, valve, and connections for leaks or breakage.

Troubleshooting

Table 28-1:
Troubleshooting

Issue	Possible Cause	Solution
1. No display.	No power at electric outlet.	Repair outlet or use working outlet.
	Control valve power adapter not plugged into outlet or power cord end not connected to PC board connection.	Plug power adapter into outlet or connect power cord end to PC board connection.
	Improper power supply.	Verify proper voltage is being delivered to PC board.
	Poor connection between POD connector and PC board.	Check connector on POD, possible broken wire or terminal pin not inserted properly in connector. Clean pins on PC board by plugging & unplugging the POD connector a few times to remove excess protective coating.
	Defective power adapter.	Replace power adapter.
	Defective PC board.	Replace PC board.
2. Does not display correct time of day.	Power Adapter plugged into electric outlet controlled by light switch.	Use uninterrupted outlet.
	Tripped breaker switch and/or tripped GFI.	Reset breaker switch and/ or GFI switch.
	Power outage.	Reset time of day.
	Defective PC board.	Replace PC board.
3. Display does not indicate that water is flowing. Refer to user instructions for how the display indicates water is flowing.	Bypass/ isolation valve in bypass position.	Turn bypass/ isolation handles to place in service position.
	Meter is not connected to meter connection on PC board.	Connect meter to three pin connection labeled FLOW on PC board.
	Restricted/ stalled meter turbine.	Remove meter and check for rotation or foreign material.
	Meter wire not installed securely into three pin connector.	Verify meter cable wires are installed securely into three pin connector labeled FLOW.
	Defective meter.	Replace meter
	Defective PC board.	Replace PC board.
4. Control valve regenerates at wrong time of day.	Power outage.	Reset time of day.
	Time of day not set correctly.	Reset to correct time of day.
	Time of regeneration set incorrectly.	Reset regeneration time.
	Control valve set at “on 0” (immediate regeneration).	Check programming setting and reset to dEL (for a delayed regen time)
5. Time of day flashes on and off.	Power outage.	Reset time of day.
6. Control valve does not regenerate automatically when the REGEN button is depressed and held.	Broken drive gear or drive cap assembly.	Replace drive gear or drive cap assembly. Contact Anden technical support.
	Defective PC board.	Replace PC board.
	For the case of systems, another unit in regen would not allow another unit to go into regeneration.	Wait for unit in regeneration to finish.

Troubleshooting

Table 29-1:
Troubleshooting

Issue	Possible Cause	Solution
7. Control valve does not regenerate automatically but does when the REGEN button is depressed and held.	Bypass/ isolation valves in bypass position.	Turn bypass/ isolation valves handles to place in service position.
	Meter is not connected to meter connection on PC board.	Connect meter to three pin connection labeled FLOW on PC board.
	Restricted/ stalled meter turbine.	Remove meter and check for rotation or foreign material.
	Incorrect programming.	Check for programming error.
	Meter wire not installed securely into three pin connector.	Verify meter cable wires are installed securely into three pin connector labeled FLOW.
	Defective meter.	Replace meter.
	Defective PC board.	Replace PC board.
8. Hard or untreated water is being delivered.	Water quality is good • Bypass/ isolation valves are open or faulty	External bypass leak • Fully close bypass/ isolation valves or replace
	Water quality is poor • Damaged seal/stack assembly • Faulty riser tube or seal • Control valve body type and piston type mix matched	Internal bypass leak • Replace seal/stack assembly • Verify seal placement & engagement with riser • Verify proper control valve body type and piston type match
	Media is exhausted, water quality is poor • Higher than anticipated water usage • Meter not registering • No regenerant or low level of regenerant in regenerant tank • Control fails to draw in regenerant • Water quality fluctuation • Fouled media bed	No internal leaks • Check program settings or diagnostics for abnormal water usage • See Troubleshooting Guide #3 • Check refill setting in programming. Check refill flow control for restrictions or debris and clean or replace, check refill flow control rate for proper fill time. • Refer to Troubleshooting Guide # 12 • Test water and adjust program values accordingly • Replace media bed
9. Control valve uses too much regenerant.	Improper refill setting or refill fill flow control is not sized properly	Check refill setting and check refill flow control for proper refill rate.
	Improper program settings	Check program setting to make sure they are specific to the water quality and application needs.
	Control valve regenerates frequently	Check for leaking fixtures that may be exhausting capacity or system is undersized.
10. Residual regenerant being delivered to service.	Low water pressure	Check incoming water pressure – water pressure must remain at minimum of 25 psi.
	Plugged, fouled, or incorrect injector size	Inspect and clean or replace injector, or replace injector with correct size for the application.
	Restricted drain line	Check drain line for restrictions or debris and clean.

Troubleshooting

Table 30-1:
Troubleshooting

Issue	Possible Cause	Solution
11. Excessive water in regenerant tank	Tank is being overfilled • Improper program settings • Missing refill flow controller	Excess from fill cycle • Verify program settings • Visual inspection / measure volume output into container
	Previous regenerant is not being drawn out	See Troubleshooting Guide #12
12. Control valve fails to draw in regenerant	Injector is plugged	Remove injector and clean or replace
	Faulty regenerant piston	Replace regenerant piston
	Regenerant line connection leak	Inspect regenerant line for air leak
	Drain line restriction or debris cause excess back pressure	Inspect drain line and clean to correct restriction
	Drain line too long or too high	Shorten length and/or height
	Low water pressure	Check incoming water pressure – water pressure must remain at minimum of 25 psi
	Damaged seal/ stack assembly	Inspect seal stack assembly for damage and replace
13. Water running to drain	Power outage during regeneration or unit is currently in regeneration	Upon power being restored control will finish the remaining regeneration time. Reset time of day.
	Damaged seal/ stack assembly	Replace seal/ stack assembly
	Piston assembly failure	Replace piston assembly
	Drive cap assembly not tightened properly	Re-tighten the drive cap assembly
14. Err – 1001 = Control unable to sense motor movement	Motor not inserted fully to engage pinion, motor wires broken or disconnected	Disconnect power, make sure motor is fully engaged, check for broken wires, make sure two pin connector on motor is connected to the two pin connection on the PC Board labeled REGEN. Press NEXT and REGEN buttons for about 3 seconds to resynchronize software with piston position.
	PC Board not properly snapped into drive bracket	Properly snap PC Board into drive bracket and then Press NEXT and REGEN buttons for about 3 seconds to resynchronize software with piston position.
	Missing reduction gears	Replace missing gears
	Damaged or dirty reduction gear reflectors	Clean or replace reduction gear
	Faulty or dirty optics on back of PC board	Clean or replace PC board

Troubleshooting

Table 31-1:
Troubleshooting

Issue	Possible Cause	Solution
15. Err – 1002 = Control valve motor ran too short and was unable to find the next cycle position and stalled	Foreign material is lodged in control valve	Open up control valve and pull out piston assembly and seal/ stack assembly for inspection. Press NEXT and REGEN buttons for about 3 seconds to resynchronize software with piston position.
	Mechanical binding	Check piston and seal/ stack assembly, check reduction gears, check drive bracket and main drive gear interface. Press NEXT and REGEN buttons for about 3 seconds to resynchronize software with piston position. Check that pinion is not pressed up tight against motor
	Main drive gear too tight	Loosen main drive gear. Press NEXT and REGEN buttons for about 3 seconds to resynchronize software with piston position. Verify free motion by rotating main drive gear by hand, driving piston in and out
	Improper voltage being delivered to PC board	Verify that proper voltage is being supplied. Press NEXT and REGEN buttons for about 3 seconds to resynchronize software with piston position.
16. E4, Err – 1004, Err – 104 = Control valve motor ran too long and timed out trying to reach home position	Drive bracket not snapped in properly and out enough that reduction gears and drive gear do not interface	Snap drive bracket in properly then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
17. Err -1006, Err – 106, Err - 116 = MAV/ SEPS/ NHBP/ AUX MAV valve motor ran too long and unable to find the proper park position. Motorized Alternating Valve = MAV Separate Source = SEPS No Hard Water Bypass = NHBP Auxiliary MAV = AUX MAV	Control valve programmed for ALT A or b, nHbP, SEPS, or AUX MAV with out having a MAV or NHBP valve attached to operate that function	Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect. Then re-program valve to proper setting
	MAV/ NHBP motor wire not connected to PC Board	Connect MAV/ NHBP motor to PC Board two pin connection labeled DRIVE. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	MAV/ NHBP motor not fully engaged with reduction gears	Properly insert motor into casing, do not force into casing Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	Foreign matter built up on piston and stack assemblies creating friction and drag enough to time out motor	Replace piston and stack assemblies. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
18. Err – 1007, Err – 107, Err - 117 = MAV/ SEPS/ NHBP/ AUX MAV valve motor ran too short (stalled) while looking for proper park position Motorized Alternating Valve = MAV Separate Source = SEPS No Hard Water Bypass = NHBP Auxiliary MAV = AUX MAV	Foreign material is lodged in MAV/ NHBP valve	Open up MAV/ NHBP valve and check piston and seal/ stack assembly for foreign material. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	Mechanical binding	Check piston and seal/ stack assembly, check reduction gears, drive gear interface, and check MAV/ NHBP black drive pinion on motor for being jammed into motor body. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.

System operating log

Table 32-1: System operating log							
Date							
Time							
Chlorine							
Cartridge in psi							
Cartridge out psi							
Water temperature							
TDS in							
TDS out							
System psi							
Concentrate psi							
Cartridge filter change							
Membrane change							
Recorded by							

Notes

Water quality test strips

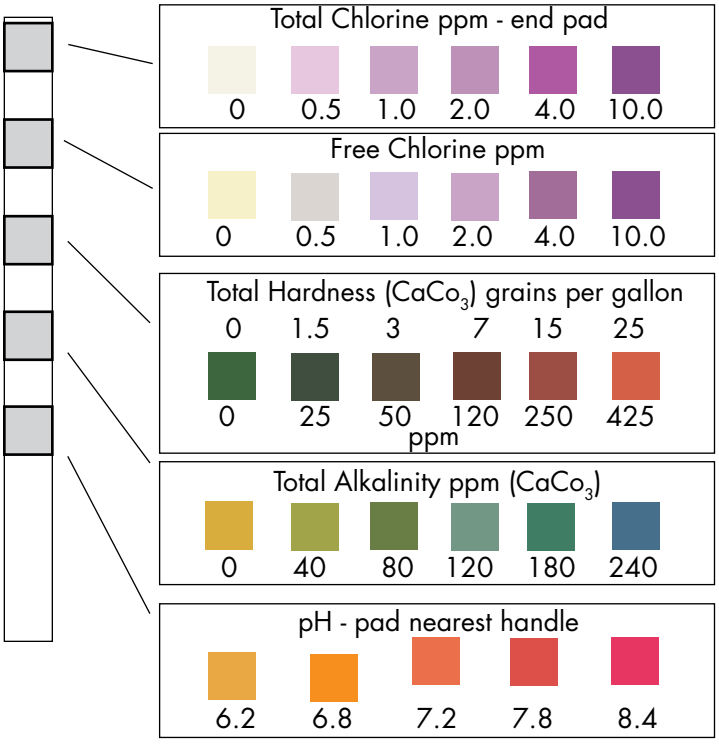
Carbon filters in the system should be changed regularly to maintain proper pressure and flow and water quality.

The carbon filter removes chlorine. Change the carbon filter when chlorine from supply water starts to pass through. Check regularly for chlorine pass through.

To check for chlorine, obtain a water sample from the concentrate drain line and test the water. If chlorine is present, change the carbon filter and record the interval to estimate the next carbon filter change.

For best results, test water chlorine every two weeks.

To order more Water Quality Test Strips, contact your local Anden rep, or call 1-800-972-3710.



DIRECTIONS:

1. Dip entire strip into water for 1 second (or pass under water stream), remove. Do not shake excess water from the test strip. Hold the strip for 30 seconds.
2. Compare TOTAL HARDNESS, TOTAL ALKALINITY and pH pads to color chart to the left.
3. Dip strip into the water again and move back and forth for 30 seconds (or hold two chlorine pads under water stream for 10 seconds).
4. Compare CHLORINE pads to color chart to the left.
5. Track results in the chart.

Table 33-1:
Test strip replacement parts

Description	Qty.	Part No.
WATER QUALITY TESTING KIT, QTY 5	5	71000306
WATER QUALITY TESTING KIT, QTY 10	10	71000307
WATER QUALITY TESTING KIT, QTY 20	20	71000308

Water quality test log

Date tested	Total Chlorine ppm	Free Chlorine ppm	Total Hardness	Total Alkalinity	pH
Week 1 _____					
Week 3 _____					
Week 5 _____					
Week 7 _____					
Week 9 _____					
Week 11 _____					
Week 13 _____					
Week 15 _____					
Week 17 _____					
Week 19 _____					

Water treatment system

FIGURE 35-1: REPLACEMENT PARTS

F22A3376

Water treatment system

Table 36-1:
General replacements parts

Description	Qty.	Part No.
GRAVEL WATER TREATMENT 1/16 X 1/8	100 lbs/bag	71000267
GRAVEL WATER TREATMENT 1/4 X 1/2	100 lbs/bag	71000268
GRAVEL WATER TREATMENT 1/4 X 1/8	100 lbs/bag	71000269

Table 36-2:
Greensand replacements parts

Description	Qty.	Part No.
GS FLTR VALVE RPLCMNT,ORIFICE1	1	71000298
GS FLTR VALVE RPLCMNT,ORIFICE2	1	71000299
GS FLTR VALVE RPLCMNT,ORIFICE3	1	71000300
GS FLTR VALVE RPLCMNT,ORIFICE4	1	71000301
GREENSAND MEDIA	lbs/bag	71000325

Table 36-3:
Multi-media replacements parts

Description	Qty.	Part No.
MS FLTR VALVE RPLCMNT,ORIFICE1	1	71000302
MS FLTR VALVE RPLCMNT,ORIFICE2	1	71000303
MS FLTR VALVE RPLCMNT,ORIFICE3	1	71000304
MS FLTR VALVE RPLCMNT,ORIFICE4	1	71000305
FILTER SAND MEDIA	lbs/bag	71000322
GARNET MEDIA	lbs/bag	71000323
ANTRHACITE MEDIA	lbs/bag	71000324

Water treatment system

Table 37-1:
Water softener replacements parts

Description	Qty.	Part No.
SOFTENER SINGLE CNTRL VLV 7-16	1	71000273
SOFTENER SINGL CNTRL VLV 21-24	1	71000272
DUAL SOFTENER CNTRL VLV 7-16	1	71000263
DUAL SOFTENER CNTRL VLV 21-24	1	71000262
SOFTENER VALVE RPLCMNT,ORFC 1	1	71000290
SOFTENER VALVE RPLCMNT,ORFC 2	1	71000291
SOFTENER VALVE RPLCMNT,ORFC 3	1	71000292
SOFTENER VALVE RPLCMNT,ORFC 4	1	71000293
WATER SOFTENER RESIN	51 lbs/bag	71000274

Table 37-2:
Dechlorinator replacements parts

Description	Qty.	Part No.
DECHLOR SINGLE CNTRL VLV 7-14	1	71000261
DECHLOR SINGLE CNTRL VLV 16-24	1	71000260
DECHLOR VALVE RPLCMNT,ORIFICE1	1	71000294
DECHLOR VALVE RPLCMNT,ORIFICE2	1	71000295
DECHLOR VALVE RPLCMNT,ORIFICE3	1	71000296
DECHLOR VALVE RPLCMNT,ORIFICE4	1	71000297
CARBON WATER TREATMENT	28 lbs/bag	71000258

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