AspenPro Water Softening System & Wholehouse Carbon System





Water Softener



Filter Conditioner

INSTALLATION, OPERATING AND START-UP MANUAL

REV 03.22

PARGREEN WATER TECHNOLOGIES

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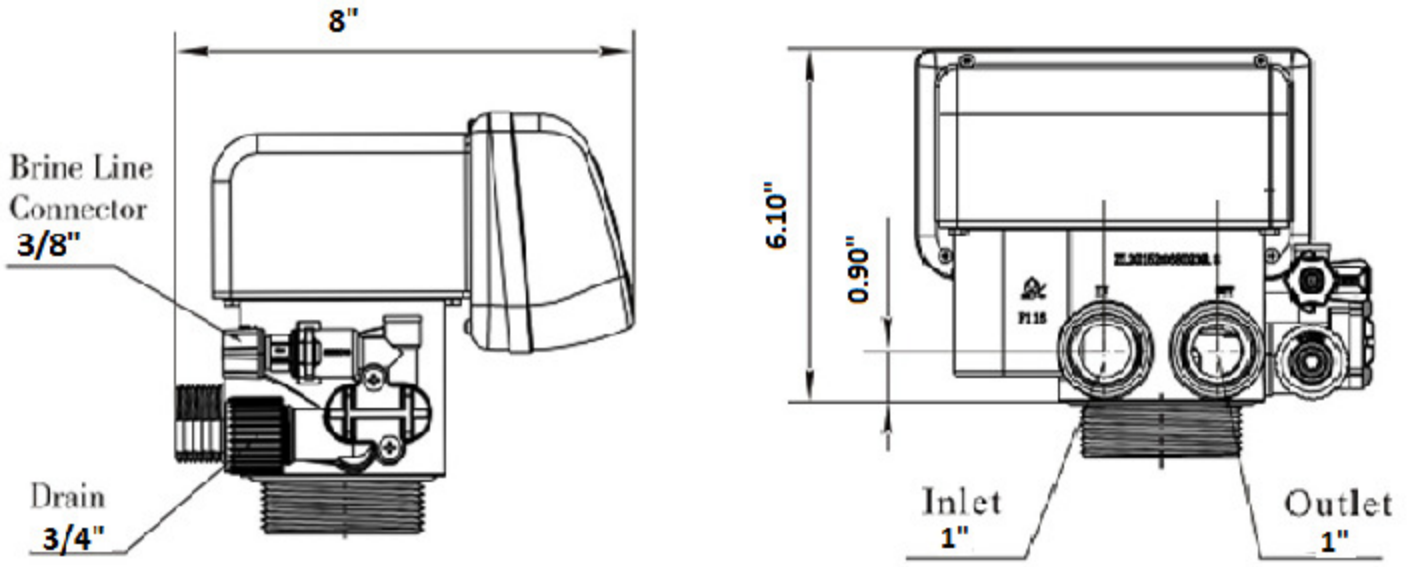
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Product Dimensions and Specifications



Length (max.)	Width (max.)	Height (max.)	Regeneration Mode
8"	8"	6.10"	Down-flow

These valve dimensions are for reference only.

Connect Port Dimensions							
Product Model	**Inlet Port**	**Outlet Port**	**Drain Port**	**Brine Port**	**Base**	**Riser Pipe**	**Hard Water Bypass**
PWT 2.5	1"	1"	1/2" Barb	3/8"	2.5" 8NPSM	1.05"	Yes

Main Technical Parameters	
Water Capacity	See Performance Data Sheet
Power Input	120VAC / 60Hz
Power Output	12VAC / 1.5A
Regeneration Cycles	Sequence 1: Service → Backwash → Brine & Slow Rinse → Fast Rinse → Brine Refill Sequence 2: Service → Backwash → Brine & Slow Rinse → Backwash → Fast Rinse → Brine Refill Sequence 3: Service → Brine Refill → Service (240 min-time fixed) → Backwash → Brine & Slow Rinse → Backwash → Fast Rinse Sequence 4: Service → Backwash → Fast Rinse → Air Draw

AspenPro Softening System Specifications

Efficiency

Model*	Resin Cubic Feet	Overall Height Inches	Diameter Inches	Flow Rate Gallons Per Minute$_1$	Water (Gallons) Used Per Regeneration$_2$	Grains Exchanged Per lb. Salt
SSG48	1	54.7	9	8.9	58	3,000
SSG54	1.5	60.9	10	10.9	71	3,000
SSG52	2	59.0	12	15.7	102	3,000
SSG1354	2.5	61.4	13	15.7	120	3,000

AspenPro Wholehouse Carbon System Specifications

Model*	Resin Cubic Feet	Overall Height Inches	Diameter Inches	Flow Rate Gallons Per Minute$_1$	Water (Gallons) Used Per Regeneration$_2$	Gallons Per Minute in Backwash	Gallons Per Regeneration Chl ≤ 1 PPM$_3$
FSG54-2.5-AC	1.5	60.9	10	6	88	4.89	1,500
FSG52-2.5-AC	2	59.0	12	8	119	6.60	2,000
FSG1354-2.5-AC	2.5	61.4	13	10	146	8.10	2,500
FSG1465-2.5-AC	3	72.2	14	12	146	8.10	3,000

* Additional Sizes Available
1 - Flow Rate at 4 GPM/Cubic Foot
2 - Usage Based on Water Supply Quality; Usage ± 10%
3 - Based on 4GPM/Cubic Foot, pH 7, 21°C

Bypass Installation

* Push Pull Bypass – 41204 NA / **Every AspenPro System uses a Ceramic Bypass -- 41205**

  Note: *Before attaching the bypass to the valve, verify the meter is installed into the outlet side of the bypass with the impeller facing in.*

  - As Figure 1-2 shows; install the seals into the animated connector.
  - Attach animated connectors to the inlet/outlet and grease the O-rings.
  - Attach the bypass valve and insert the clips.
  - Meter cable is installed into cable port on the outlet side during system start-up, see page 25.

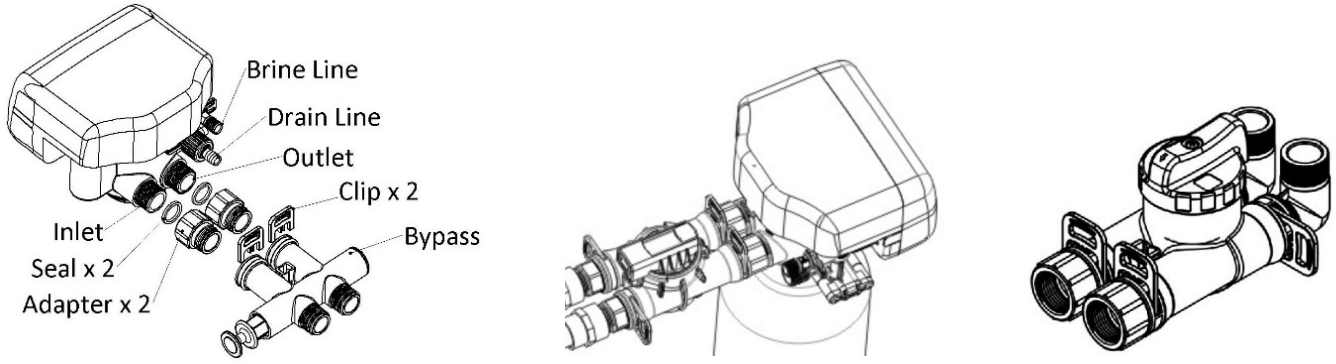


Figure 1-2

Pre-Installation Checklist

IMPORTANT NOTICE

Read through the instructions thoroughly and obtain all materials and tools before proceeding with the installation. Be sure to follow all applicable national, state, county and local plumbing codes and regulations.

All plumbing and electrical work should be performed by an accredited professional to ensure all local, state, and municipal guidelines are met.

During cold weather it is recommended that the installer warm the valve to room temperature before operating.

Required Operating Conditions

Working Conditions	Working Pressure	20psi to 90psi
	Water Temperature	35 °F to 125 °F
Working Environmen	Environment Temperature	35 °F to 125 °F
	Relative Humidity	≤95%
	Power Source	120VAC /60Hz
Inlet Water Quality	Turbidity	5 FTU
	Hardness	50 grains per gallon
	Chlorine	1.0 ppm
	Iron	1.0 ppm

CAUTION

Do not exceed 120 psi water pressure.
Do not exceed 35° C / 125° F water temperature.
Do not subject unit to freezing conditions.

Failure to use this product within the described conditions may void the warranty.

Operating Condition and Cautions

- Do not use the system with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

- Do not use the brine tube, injector body, or other connectors on the AspenPro valve as a handle to carry the system.

- Ensure there is salt in the brine tank at all times when this valve is used for softening. The brine tank should contain clean water softening salt only, at least 99.5% pure. Do not use small grain salt.

- When there is moderate to high turbidity, a filter should be installed before the water softening system on the inlet side.

- If the water pressure exceeds 120psi, a pressure reducing valve must be installed before the water inlet. If the water pressure exceeds 80 psi, installing a pressure reducing valve before the water inlet is highly recommended. If the water pressure is under 20 psi, a booster pump must be installed before the water inlet.

- Replacement parts for the ApsenPro valve should only be purchased through Pargreen resellers. Electrical components, such as transformers, are specific to the AspenPro valve from Pargreen.

- Regular interval monitoring of the water quality and work environment is recommended to ensure proper operation of the valve and system.

- Any modification to AspenPro equipment, which is outside the standard scope of supply, voids the product warranty.

- AspenPro equipment, like all modern electronic devices, can be damaged by electrical surges or brown outs. Every effort has been taken to harden the circuits, by design, to protect against such events. These precautions, or even additional surge protection, are not 100% effective. Therefore, equipment damage caused by abnormal electrical events is not covered by warranty.

Plumbing and Mechanical Setup

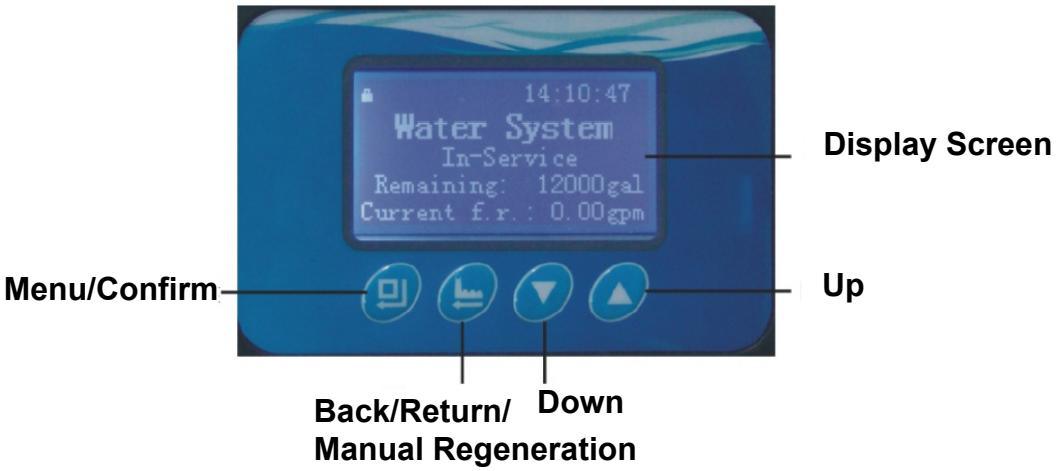
If making a soldered copper installation, all sweat soldering should be done before connecting pipes to the valve. Torch heat will damage plastic parts.

When turning threaded pipe fittings onto plastic fitting, take precaution not to cross thread or over tighten.

Unit Location

- The filter or softener should be located close to a floor drain away from direct sunlight and any heat sources.
- Protect equipment from direct sunlight and precipitation exposure.
- Install equipment in a location safe from unauthorized access or vandalism.
- Ensure that the unit is installed with enough space for operation and maintenance.
- The installation surface should be clean and level.
- Install the unit in an environment which minimizes consumer risk of loss in the event of malfunction.
- AspenPro offers many different products for many different applications, for both indoor and outdoor environments. If you are not 100% sure the equipment purchased is suitable for the installation application or environment, please check with a your local equipment provider, to ensure the proper equipment is selected. Equipment installed in inappropriate applications or environments are not covered by warranty.
- Brine tank should be installed within 10 feet of the AspenPro control valve.

Programming: Display and Instructions



Unlocking the Keypad

The icon indicates the buttons are locked within 5 minutes of idle use. To unlock press and hold and for 3 seconds until the icon is off.

Manual / Delayed Regeneration

1. Pressing at any time results in an immediate manual regeneration.
2. Pressing and holding for 3 seconds, when system is locked, results in a delayed regeneration at the preselected time.

One Button to Change the Current Time

Pressing and holding the button for 3 seconds, when system is locked, allows the current time of day to be adjusted.

Enter Key 

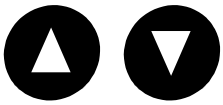
Press button to enter the basic programming mode, modify highlighted options, and return to the main menu.

Manual Regen/Esc. Key 

Press

to the home screen without modifying the current highlighted option.

at any phase during manual regeneration to advance to the next phase or press during programming to exit

Up and Down Arrows 

and buttons are used to scroll through the various basic programming options as well as adjust values.

Basic Programming

Allows you to adjust the time values for each phase. To enter basic programming, follow the directions below.

1. When the icon is on, press and hold both and for 3 seconds to unlock the keypad.
2. Press to enter the main menu; press or to highlight each option.
3. Press to enter highlighted option.
4. Press or to adjust the value.
5. Press to accept changes.
6. Press to exit back to service status.

Advanced Programming

Allows you to set the Regen Cycle and Regen Mode that will work best for your customer; as well as adjust or set each phase time. To enter advanced programming, follow the directions below.

1. Plug in the control valve Immediately press in sequence to enter into the advanced setting.
2. Press or to select the menu item to be changed.
3. Press to return to the previous menu.

If valve locks while programming, unplug power supply and repeat step above.

4. Press to enter the main menu; press or to highlight each option.
5. Press to enter highlighted option.
6. Press or to adjust the value.
7. Press to accept changes.
8. Press to advance to service status.

AspenPro Water Softener

System Set-up Sheet

Control Valve - PWT 2.5
Regen Cycle 1; Regen Mode A-01

Programming: Mode A-01 ***Set Regen Cycle First in Programming**

Screen View	Setting	Additional Information
Review Company Info	NA	
Set Language	English	
Set Company Info	NA	
Set Hour Mode	12 HR	
Set Time of Day	Actual Time	
Set Date	Current Date	
Set Program Type	Interlock	
*Set Regen Cycles 1,2,3,4	1	
Clear Data	Close	
*Set Regen Mode: A-01-A-07 *	A-01	Intell. Meter Delayed
Set Total Capacity	gr	SSB948 = 32,000; SSB1054 = 48,000; SLB1252 = 64,000 SLB1354 = 80,000
Set Regen Time	2am	
Set Backwash Time	10 Min.	
Set Brine & Slow Rinse Time	60 Min.	
Set Fast Rinse Time	10 Min.	
Set Brine Refill	See Min. >	SSB948 = 10; SSB1054 = 10; SLB1252 = 5; SLB1354 = 6
Max Days for Regeneration	30 Days	
Signal Output Mode b-01 (02)	b-01	
Set Service Alarm	disabled	
Review Regen Times	NA	
Review Software Ver.	Ver. 3.0	

AspenPro Filter Settings

System Set-up Sheet

Control Valve - PWT 2.5
Regen Cycle 1; Regen Mode A-07

Programming: Mode A-07 ***Set Regen Cycle First in Programming**

Screen View	Setting	Additional Information
Review Company Info	NA	
Set Language	English	
Set Company Info	NA	
Set Time of Day	Actual Time	
Set Date	Current Date	
Set Program Type	Interlock	
*Set Regen Cycles 1,2,3,4	1	This setting disappears in A-07
Clear Data	Close	
*Set Regen Mode: A-01-A-07 *	A-07	Filter Meter Type
Set Capacity	Gallons	FSB1054 = 700, FSB1252 = 1000, FLB1354 = 1200
Set Rinse Frequency	F-00	
Set Regen Time	12am	
Set Backwash Time	12 Min.	GPM: FSB1054=4.89; FSB1252=8.1; FLB1354=9 (no DLFC)
Set Fast Rinse Time	10 Min.	
Max Days for Regeneration	7 Days	
Signal Output Mode b-01 (02)	b-01	
Set Service Alarm	disabled	
Review Regen Times	NA	
Review Software Ver.	Ver. 3.0	

Start-up Instructions – Water Conditioners (Softeners & Filters)

1. **Plugging in the power cord**: Plug the water conditioner's transformer into an appropriate electrical outlet. Then plug the DC jack into the pigtail cord on the control (see manual.)

   Make sure that the outlet is not on a switch. The outlet needs to be live at all times. Avoid electrical circuits that also service large appliances, sump pumps or devices with large motors with high Amp draw.

2. **Ensure that the water heater supply valve is off during the conditioner start-up!**

3. **Setting the water conditioner controls**: Set the controller as directed in the manual. For a Water Softener: Set time and date, water hardness and number of people supplied by the system. For a Filter: Set time and date.

4. **Open the bypass valve**: It is recommended to keep the water inlet valve at ½ open during the next step. With the control set for normal service, slowly open the water inlet valve and check for leaks in the installation plumbing. If okay, slowly open the bypass valve.

5. **Allow water to fill the conditioner tank**. Run the water into the conditioner until the flow stops.

6. **Perform a conditoioner regeneration cycle**. Follow the instructions in this manual for a "manual regeneration" start-up. (see pg. 8)
   VERY IMPORTANT: TURN THE WATER INLET TO THE "OFF" POSITION BEFORE STARTING STEP 6. PUT TWO GALLONS OF CLEAN WATER IN THE SALT TANK BEFORE STARTING THE MANUAL REGENERATION CYCLE.

   Note: There will be air trapped in the top of the conditioner tank at the beginning of this step. Make sure the drain hose is secured before starting the manual regeneration. Once the control is in its first cycle, slowly open the water inlet (about ¼ open) and allow the air to escape to the drain. When the air has cleared the conditioner, turn the water inlet to full and allow the conditioner to finish the complete regeneration cycle.

   In the case of a filter conditioner, check the drain water during the fast rinse to see that all the media fines & color are cleared. If color remains, run the cold faucet nearest to the conditioner until the water is clear.

7. **Water softener salt and salt tank**. Make sure the water in the salt tank is above the salt grid after the systems refills. On the initial start-up, only fill the salt tank half full of salt incase adjustments to water levels are required. Use a salt that is 99% pure, solar salt crystals are recommended.

8. **Water Heater**. Open the water heater supply valve. If the water heater holds hard water, it will take several days of service until the hot water is totally soft.

Troubleshooting

Control Valve

Problem	Cause	Correction
1. Softener fails to regenerate	A. Electrical service to unit has been interrupted. B. Regeneration cycles set incorrectly. C. Controller is defective. D. Motor failure.	A. Check for consistent electrical service. B. Reset regeneration cycles. C. Replace controller. D. Replace motor.
2. Regeneration time is not correct	A. Time of Day not set correctly. B. Power failure over 3 days.	Check program and reset time of day.
3. Hard water	A. Bypass valve is open or leaking. B. No salt in brine tank. C. Injector plugged. D. Insufficient water level in brine tank. E. Leak at O-ring on riser pipe. F. Internal valve leak. G. Regeneration cycles not correct. H. Shortage of resin. I. Bad quality of feed water or meter blocked.	A. Close or repair bypass valve. B. Add salt to brine tank and maintain salt level above water level. C. Change or clean injector. D. Check brine tank refill time. E. Make sure riser pipe is not cracked. Check O-ring and tube pilot. F. Change valve body. G. Set correct regeneration cycles in the program. H. Add resin to mineral tank and check for leaks. I. Reduce the inlet turbidity, clean or replace meter.
4. Softener fails to draw brine	A. Line pressure is too low. B. Brine line is plugged. C. Brine line is leaking. D. Injector is plugged. E. Internal leakage. F. Drain line is plugged. G. Wrong size BLFC, DLFC and injector.	A. Increase line pressure. B. Clean brine line. C. Replace brine line. D. Clean or replace injector. E. Replace valve body. F. Clean drain line flow control. G. Install properly sized BLFC, DLFC and injector. See Page 13.
5. Unit uses too much salt	A. Improper salt setting. (Brine refill time) B. Excessive water in brine tank.	A. Check salt usage and salt setting. (Brine refill time) B. See problem no.6.
6. Excessive water in brine tank	A. Brine refill time is too long. B. Foreign material in brine line. C. Foreign material in brine valve or plugged drain line flow control. D. Power outage during brine fill. E. Safety valve in brine tank malfunction.	A. Reset correct refilling time. B. Clean brine line. C. Clean brine valve, and DLFC. D. Put the valve in bypass. Install a safety float in brine tank. E. Repair or replace brine safety valve.

7. Pressure lost or iron in conditioned water	A. Iron in the water supply pipes. B. Iron mass in the softener. C. Fouled resin bed. D. Too much iron in the raw water.	A. Clean the water supply pipe. B. Clean valve and add resin cleaning chemical, increase frequency of regeneration. C. Check backwash, brine draw and brine refill. Increase frequency of regeneration and backwash time. D. Install Iron removal equipment before softening.
8. Loss of mineral through drain line	A. Air in water system. B. Bottom strainer broken. C. Improperly sized drain line control (DLFC).	A. Assure that well system has proper air eliminator control. B. Replace bottom strainer. C. Check for proper drain rate.
9. Control cycles continuously	A. Signal to the locating PCB is interrupted. B. Controller is faulty. C. Foreign material in the drive gear. D. Time of regeneration steps were set to zero.	A. Check the connection between the main PCB to the locating PCB. B. Replace controller. C. Remove blockage in drive gear. D. Check program setting and reset.
10. Drain flows continuously	A. Internal valve leak. B. Interrupted power supply during backwash.	A. Check and repair valve body or replace it. B. Adjust valve to service position or turn off bypass valve and restart when power is restored.
11. Interrupted or irregular brine	A. Water pressure too low or not stable. B. Injector is plugged or faulty. C. Air in resin tank.	A. Increase water pressure. B. Clean or replace injector. C. Check and find the reason.
12. Water flows from drain or brine line after regeneration	A. Foreign material in the valve body. B. Hard water mixed in valve body. C. Water pressure is too high.	A. Clean foreign material in valve body. B. Change valve core or sealing ring. C. Reduce water pressure or use pressure release function.
13. High concentration of brine	A. Foreign material in injector. B. Brine valve cannot be shut-off. C. Rapid rinse time is too short.	A. Clean and repair injector. B. Replace brine valve or clean it. C. Extend rapid rinse time.
14. Decreased Capacity	A. Regeneration is not occurring. B. Fouled resin bed. C. Safety float is not at the proper height or brine time is low. D. Softener setting not proper. E. Raw water quality has altered. F. Flow meter is slow or stationary.	A. Reset regeneration parameters. B. Increase backwash flow rate and time, clean or change resin. C. Adjust brine draw time and float height. D. Re-test the water and change the valve parameters. E. Regenerate unit manually then reset regeneration cycle. F. Disassemble and clean flow meter or replace.
15. Power Outage Occurs During Regeneration	A. System locked in current phase/cycle.	A. Close the bypass until power resumes. If power outage lasts over 72 hours, the time of day will need to be reset.

Electronics

Problem	Cause	Correction
1. Abnormal display	A. Wiring to the front panel is loose. B. Control board is faulty. C. Transformer malfunction. D. Electrical service unstable.	A. Check and replace the wiring. B. Replace control board. C. Check and replace transformer. D. Verify power source.
2. Blank display	A. Wiring to the front panel is loose. B. Front panel damaged. C. Control board damaged. D. Electricity is interrupted.	A. Check and replace wiring. B. Replace front panel. C. Replace control board. D. Check power source.
3. E1 code	A. Wiring of locating board with controller fails to work. B. Locating board damaged. C. Mechanical drive failure. D. Faulty control board. E. Wiring to the motor has a short. F. Motor damaged.	A. Replace wiring. B. Replace locating board. C. Replace Discs or drive gear. D. Replace control board. E. Replace wiring. F. Replace motor.
4. E2 code	A. Hall effect on locating board damaged. B. Possible short in the wiring to the locating board. C. Control board malfunction.	A. Replace locating board. B. Replace wiring. C. Replace control board.
5. E3 or E4 code	A. Control board malfunction.	A. Replace control board.

LIMITED WARRANTY

As described herein, Hankscraft Runxin, LLC ("Hankscraft Runxin"), warrants its products are free from defects in material and workmanship only, when properly installed, operated, and maintained. This warranty is subject to the exceptions herein.

Hankscraft Runxin warrants to the original owner that the items listed below, excluding but not limited to wear parts like O-rings, gaskets and seals, will be free from defects in materials and workmanship for the period of time specified below from the original purchase date.

Product or Component	Warranty Period
Control Valves	Five (5) Years
Storage Tanks	Five (5) Years
Media Tanks	Ten (10) Years
Any Other Components	One (1) Year
Ceramic Discs for Rotary Valves	Lifetime

Media/resin is not warrantied due to water supply quality differences.

Any parts used for replacement are warrantied for the remainder of the original warranty period applicable to the part from the date of manufacture so long as the parts are installed by a Pargreen factory trained and authorized installer.

Hankscraft Runxin's obligation by this Limited Warranty, at is option, is to repair or replace any warrantied product only. Labor for repair or replacement is not included as part of this warranty. Prior to returning the product to Pargreen, a valid return materials authorization number must be obtained from Pargreen. Any product returned to Pargreen without a valid return authorization number will be rejected. Any product found to be defective will, at the sole discretion of Pargreen, be repaired or replaced. Pargreen is not responsible for shipping cost to the repair facility. This section lists the sole remedies for any valid warranty claim.

This warranty does not apply to defects reported to outside of the warranty period.

This warranty does not apply to defects caused by installing, operating, servicing, modifying, repairing or maintaining (or lack of maintaining) the product outside of Pargreen's recommendations. Filters, membrane elements and flow restrictors that become fouled or plugged due to excessive turbidity, dissolved solids, or microorganisms are not covered by this warranty. This warranty does not apply to defects caused by damage during shipment, neglect, misuse, modification, accident, noncompliance with local codes and ordinances, hot water, frozen water, sediment, corrosive liquids, gases, chemicals, bacteria, animals, sand, salt, flood, wind, fire, outdoor installations where the product is not reasonably covered, pneumatic use, natural disasters, war, terrorism or acts of God. No other person is authorized to make any other warranty on behalf of Pargreen either during or after the applicable warranty period.

Pargreen assumes no liability for determining the proper products and equipment or installation necessary to meet the requirements of the user of the product, and Pargreen does not authorize others to assume such liability on its behalf.

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