CHANDLER SYSTEMS

CSB121

Valve Manual

with

LEGACY VIEW Bluetooth®

NSF/ANSI/CAN 61

IAPMO R&T ®

Available on the App Store

ANDROID APP ON Google play

LEGACY VIEW

Setup
Control
View History
Modify Settings
Monitor Water Usage

Bluetooth™

ANDROID APP ON Google play

Available on the App Store

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Register your product online at
www.chandlersystemsinc.com

WARNING:

Lubricants
Do NOT use Vaseline, oils, hydrocarbon lubricants or spray silicone anywhere! Petroleum base lubricants will cause swelling of o-rings and seals. The use of other lubricants may attack plastic Noryl®. It is recommended that Dow Corning® silicone grease be used as a lubricant for all control valves. Dow Corning® 7 Release Compound is used in the manufacture of Chandler Systems control valves. (Part # LT-150)

Sealants
Pipe dope and liquid thread sealers may contain a carrier that attacks some plastic materials. It is recommended that only Teflon® tape be used to seal plastic Noryl® threaded fittings.

FCC Compliance Statement:
http://www.chandlersystemsinc.com/files/FCC_Compliance_Statement.pdf

Industry Canada Compliance Statement:
http://www.chandlersystemsinc.com/files/Industry_Canada_Compliance_Statement.pdf

One or more features of this product are covered by U.S. patents, visit http://csih2o.com/patents.php for more information.

CSB121 BLUETOOTH VALVE

Model Number	Description	Piston Type	Injector / Plugs	Valve Body
20121B500	Softener Valve, Rear Inlet/ Outlet, for Single Tank Operation with Manual Bypass	Hard water bypass during regeneration with integrated water shutoff	Injector	CSB121
20121B600	Filter Valve, Rear Inlet/ Outlet, for Single Tank Operation with Manual Bypass	Hard water bypass during regeneration with integrated water shutoff	Plugs in Injector Port and Refill Port	CSB121
20121B550	Softener Valve, Rear Inlet/ Outlet, for Multi-Tank Operation with Manual Bypass	No Hard water bypass during regeneration with integrated water shutoff	Injector	CSB121
20121B650	Filter Valve, Rear Inlet/ Outlet, for Single Tank Operation with Manual Bypass	No Hard water bypass during regeneration with integrated water shutoff	Plugs in Injector Port and Refill Port	CSB121

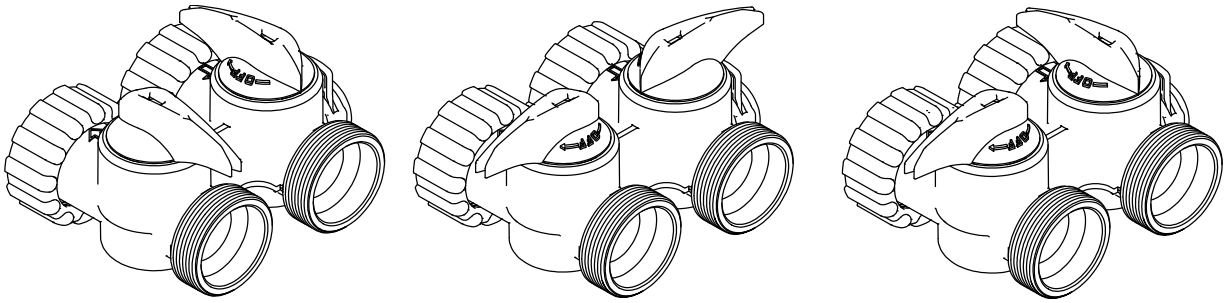
Detailed Valve Description

The CSB121 Bluetooth valve has fully automatic control mechanisms that direct and regulate all cycles of the water treatment unit. The control valve has been designed to make it easily serviceable. The inlet, outlet, drain and access to the water meter are all hand only tighten nuts making them quick and convenient to service. Accessing the injector or the brine port plug is quick access plug-in style with a clip, possibly only needing a flat head screwdriver to open the plug. Accessing the piston and seals only requires removing 5 Philips head screws and separating a few plastic clips by hand. All of this means that the valve is quick and simple to service and you do not need any specialized tools to work on the valve.

The control valve has two piston options. The first is a hardwater bypass piston, which allows hard water to be bypassed from inlet to outlet during the valve regeneration cycle. This is typical on a single tank softening or filtering system. The other option is a non-hardwater bypass piston option, which does not bypass hardwater from the inlet to the outlet during the valve regeneration cycle. All pistons have a patented water shutoff position (U.S. Patents 9714715 & 10012319). The Bluetooth can command valves to be in service, providing treated water, or in stand-by with outlet water shut off waiting for when it is needed. If your valve is using the “no hard water by pass piston, during the regeneration process, inlet water is used to perform the steps of the regeneration of the softener tank and the outlet water port is shut off when in. The control valves / pistons are only available in downflow regeneration.

The Bluetooth valve includes a turbine flow meter that is integral to the valve body. The meter is quick to access without having to separate any plumbing in case of needing to service the meter. Simply turn the bypass valve to bypass or turn the water off in the Legacy View App and loosen the nut securing the water meter, if necessary, use a flathead screwdriver under the edge to remove the flow meter from the outlet port of the valve. The meter uses set pulses per gallon over the entire flow range and has excellent accuracy at all flows above 0.75 gallons per minute. The meter allows the Bluetooth to monitor water usage and look for potential problems.

CSB121 Bypass Operation



Advanced Configuration of Valve Device Components

These products will come with the board already setup, ready to use for most installations.

Valves from the factory are preset as follows:

- Softeners
- Backwashing Filters

All these settings are on the Advanced Settings page in the app.

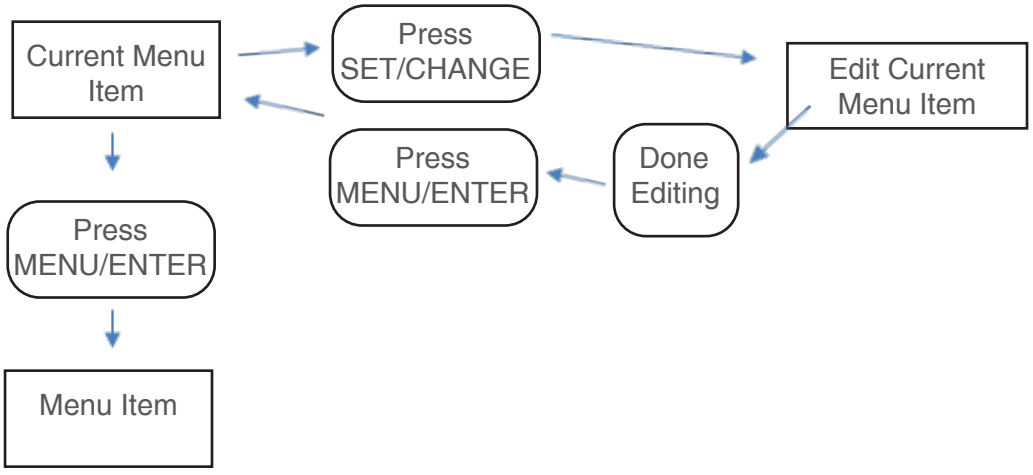
These factory presets allow for simple setup without the need for Advanced programming in a majority of installations. Some situations, however, may cause you to need to change the configuration of the board. There are up to 5 settings available on the commercial valve board configuration.

1. Regeneration Day Override. Up to 29 days.
2. Reserve Capacity. Metered systems count the gallons of water used to determine when the resin capacity will be depleted. The reserve percentage will ensure the tank can provide treated water until the scheduled regeneration time.
3. The softener resin capacity. This is available if the first option is set to Softener. The capacity can be set to 45k, 60k, 75k, 90k, 120k, 150k, 210k and 300k. These are quick common settings, that should be set according to the amount of resin in the media tank.
4. Optional Display ON/OFF.
5. Brine Pre-Fill. Set system to fill the brine tank right before a regen cycle.

Tap this icon in the Legacy View app to view information for each configuration setting.

Manual Configuration of Valve Device Components

To enter the Main Menu Press the MENU/ENTER button, time of day will begin to flash.
To edit a menu item:



Main Menu Items	Example	Notes
Set Time of Day	12:00	
AM/PM Setting	A or P	
Water Hardness setting	H 25	Tested water hardness of the water this softener is treating. Measured in grains per gallon. This will only appear for metered softener type valves. If value is set to 0, Automatic Regeneration from water usage will be disabled. Maximum setting is 99.
Backwash Day	A 06	Number of Days between Backwash cycles. This will only appear in this menu for filter type valves. If value is set to 0, Automatic Backwash cycle will be disabled. Maximum setting is 29.

To enter the Advanced Menu simultaneously press and hold both buttons for 5 seconds. Once Regeneration Time of Day appears and is flashing release the buttons.

Note: Advanced Programming functions can affect the efficiencies and the ability to properly treat the incoming water. Use caution when adjusting these settings.

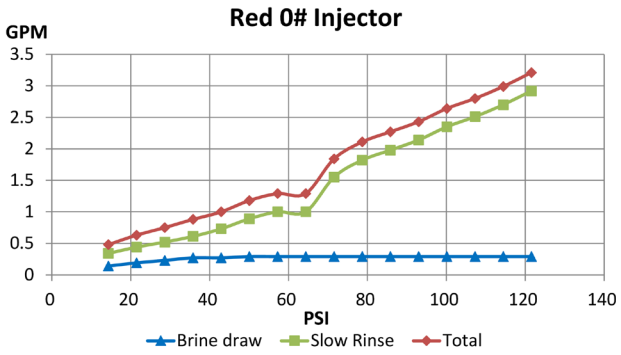
Advanced Menu Items	Example	Notes
Regeneration Time of Day	r 2A	When regeneration or backwash will occur, this example is 2 am.
Regeneration Day Override	A 14	Number of Days between Regeneration cycles. This will only appear in this menu for softener type valves. If value is set to 0, Automatic Regeneration cycle by day override will be disabled. Maximum setting is 29.
Regeneration Step Times	1 08	Indicates adjustable time in minutes for each step of the regeneration or backwash cycle. If value is set to 0, that step will be skipped in the cycle sequence. The following are the steps for Softeners and Filters. <u>Softener Cycle Steps</u>: 1: 1st Backwash Step 2: Brine Draw / Slow Rinse Step 3: 2nd Backwash Step 4: Rapid Rinse Step Note: The 5th cycle step is Brine Fill, but it is adjusted using the “SALT” setting. <u>Backwash Cycle Steps</u>: 1: Backwash Step 2: Rest Step 3: Rapid Rinse Step

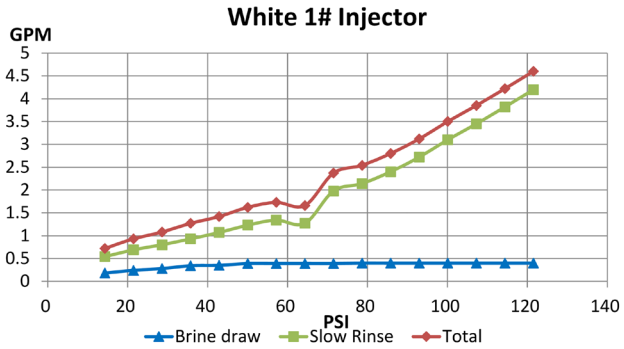
Advanced Menu Items	Example	Notes
Salt Dose	SALt 015	This setting is the amount of salt that will be used per regeneration cycle to regenerate the softener resin. This will only appear for softener type valves. Maximum setting is 199.
System Capacity in Grains	c050	The physical capacity in treatable grains of hardness that the softener can treat before needing to regenerate. This will only appear for softener type valves. Maximum setting 399.
Reserve Capacity	P 25	The treatable tank capacity percentage that is reserved for the last day before regenerating so hard water break through does not occur. This will only appear for softener type valves. Maximum setting is 49.
Bluetooth Enable	bE 1	This enables or disables the ability for the valve to be connected to via a Bluetooth connection using the Legacy View app. 1 enables Bluetooth, 0 disables Bluetooth.
Bluetooth Password	btPP ↔ 1234	The 4 digit password that is required for a user to be able to use the Legacy View app to connect to a Bluetooth valve. This value is set to 1234 by default. Legacy View will attempt to use 1234 for any valve that it has not connected to before. If the password was changed by a user Legacy View will prompt asking for the password. The password can always be viewed through the menus, so the valve should be in a secure location if limiting access is required.
Brine Prefill Enable	PE 0	This enables or disables brine prefill. When enabled the valve will wait to fill the brine tank with water until just prior to a regeneration cycle. When disabled the valve will fill the brine tank as the last step of the regeneration process. This will only appear for softener type valves. 1 enables the prefill, 0 disables the prefill.
Prefill Brine Soak Duration	Pd 3	This setting determines the length of time in hours to allow the water to absorb the salt and make the brine solution in the brine tank. This will only appear when Brine Prefill is enabled. Maximum setting is 4.
Display Off	do 0	This setting when enabled turns the LED display off. 1 turns the display off, 0 turns the display on.

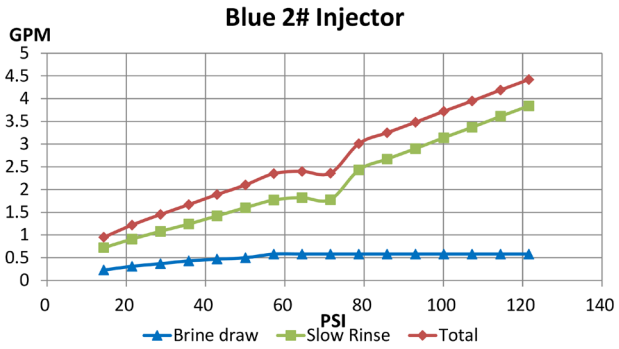
Valve specifications, Quick Reference Table

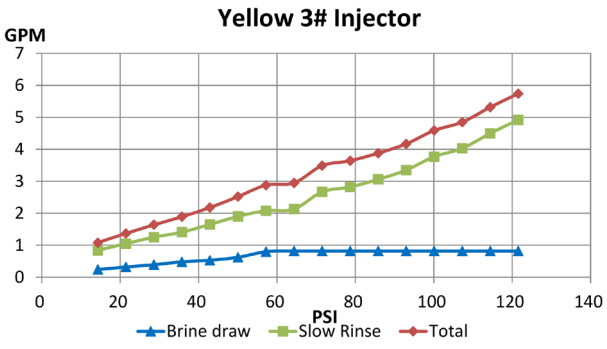
Valve Series - Piston Type Tank Opening	CSB121 – NHWB – 2.5” with Bypass Valve	CSB121 – HWB – 2.5” with Bypass Valve
Service Flow Rate @ 15 psig (with meter)	25.5	27.7
Service Flow Rate @ 25 psig (with meter)	32.2	35.6
Backwash Flow Rate @ 25 psig	27.2	24.4
Min./Max. Operating Pressure	20 – 125 psig	
Min./Max. Operating Temperature	40°F – 120°F	
Outlet water state during regeneration	Shut-off	Inlet Bypassed
Brine Refill Rate	1.0 gpm Brine Line Flow Control	
Drain Line Flow Controls	2.4 / 3.2 / 4 / 5 / 8 / 9 / 10 / 12 / 15 / 20 / 25 / 32 gpm	
Brine Draw Injector Rates @ 60 psi (see injector charts for details)	Red #0 (p/n: CS125-0#) – 0.25 gpm White #1 (p/n: CS125-1#) – 0.35 gpm Blue #2 (p/n: CS125-2#) – 0.5 gpm Yellow #3 (p/n: CS125-3#) – 0.63 gpm	
Distributor Tube Opening	1.32” O.D. (1” NPS)	
Tank Thread	2 ½” – 8 NPSM	
Drain Line Connection	1” NPT Male	
Brine Line Connection	3/8” Push-Lock	
Default Inlet / Outlet Connections	1 ” NPT Male	
Commercial Control Board	EVB-019-BT-C	
Power Adapter	12 VDC, 2.5mm x 5.5mm Barrel, Center Positive, 1000 mA Min.	

CSB121 Injectors

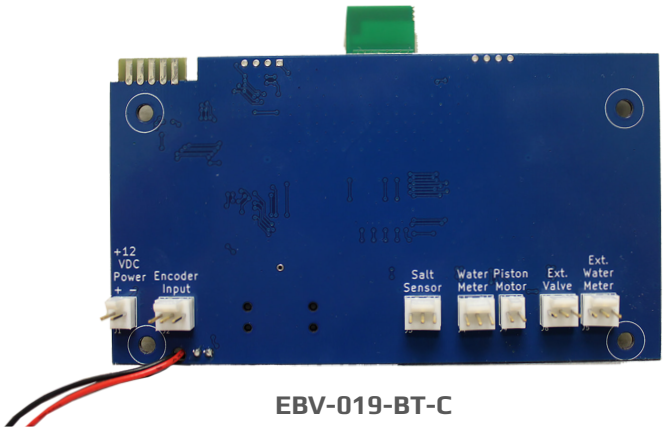








Valve Control Board Connections



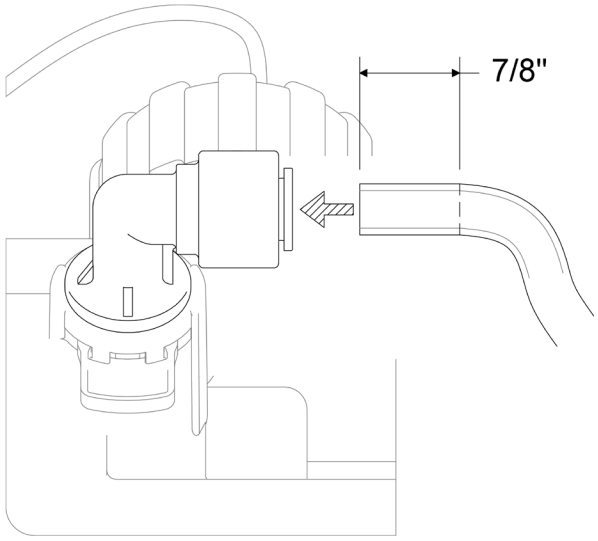
EBV-019-BT-C

The valve board wiring connections are labeled clearly according to their function. “Salt Sensor”, “Ext. Valve” and “Ext Water Meter” are for future use and for now should not be connected to.

Brine Line Push-Lock Connection

To connect the brine tubing to the brine port on the valve:

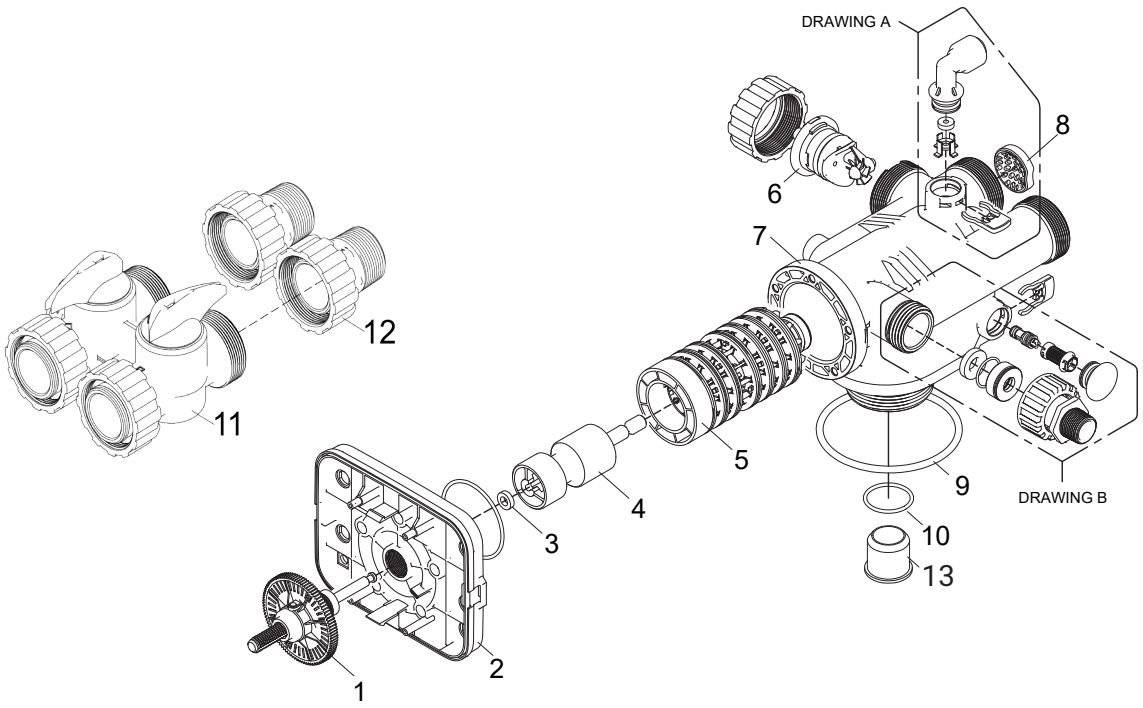
1. Make sure the 3/8” brine tubing is cut squarely on the end.
2. Push the tubing into the fitting 7/8” to be sure it is past the O-ring seal.



To release the brine tubing from the brine port on the valve:

1. Remove the orange locking clip from the brine port fitting.
2. Push in on the gray ring surrounding the brine tube, at the same time pull out on the brine tube.

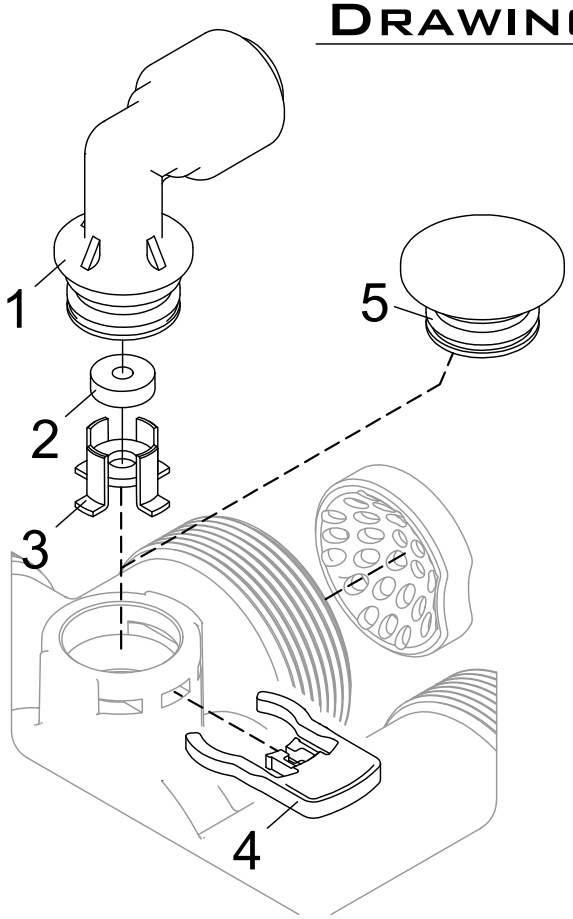
CSB121 VALVE PARTS - VALVE BREAKDOWN



No.	Part No.	Description	Qty.
1	20125X001	Encoder Wheel and Piston Rod Assy.	1
2	20125X002	Valve Body Seal Plate with O-Ring	1
3	20125X003	Piston Spacer / Stall Ring	1
4	20125X004	Softener Piston (Hardwater Bypass)	1
	20125X005	Softener Piston (No Hardwater Bypass)	
	20125X023	Filter Piston (Hardwater Bypass)	
	20125X024	Filter Piston (No Hardwater Bypass)	
5	20125X006	Seal & Spacer Stack	1
6	20125X007	Water Meter	1
	20125X007-P	Water Meter / Pressure Sensor Combo (Optional)	
7	20125X008	CS121 Valve Body (HW)	1
	20125X013	CS121 Valve Body (NHW)	
8	20125X032	Flow Straightener	1
9	20125X010	Tank Seal O-ring	1
10	20125X011	Riser Tube O-ring	1
11	CS125-BP	1.25" CS Bypass (Optional)	1
12	20125X030	1" NPT Yoke for Inlet / Outlet	1
13	HPS210430	Distributor Tube Adapter	1

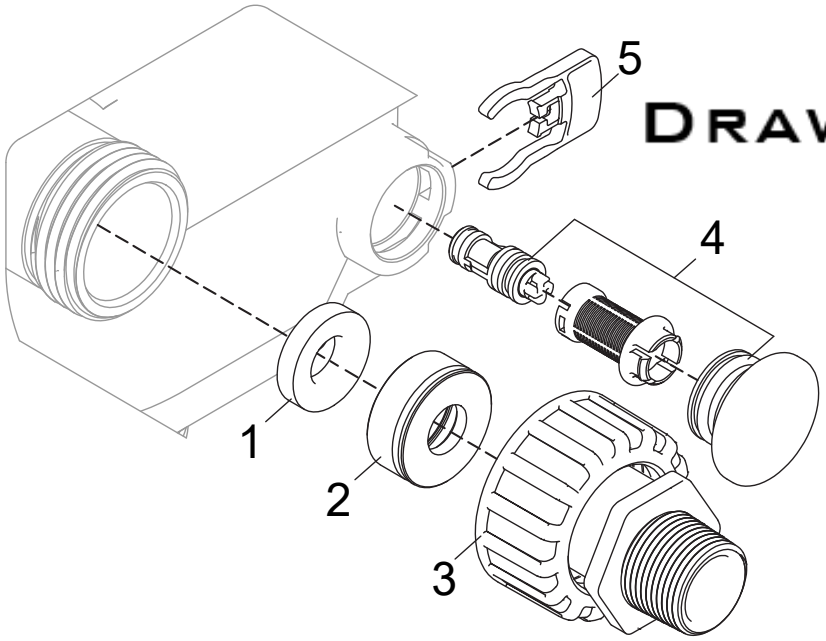
CSB121 VALVE PARTS - BRINE CONNECTION

Drawing A



No.	Part No.	Description	Qty.
1	20125X034	3/8" Push-Lock Brine Line Fitting	1
2	20125X035	Brine Line Flow Control, 1.0 gpm	1
3	20125X014	Brine Line Flow Control Retainer	1
4	20125X015	Red Locking Clip	1
6	20125X025	Optional Brine Plug for Filter Valves	1

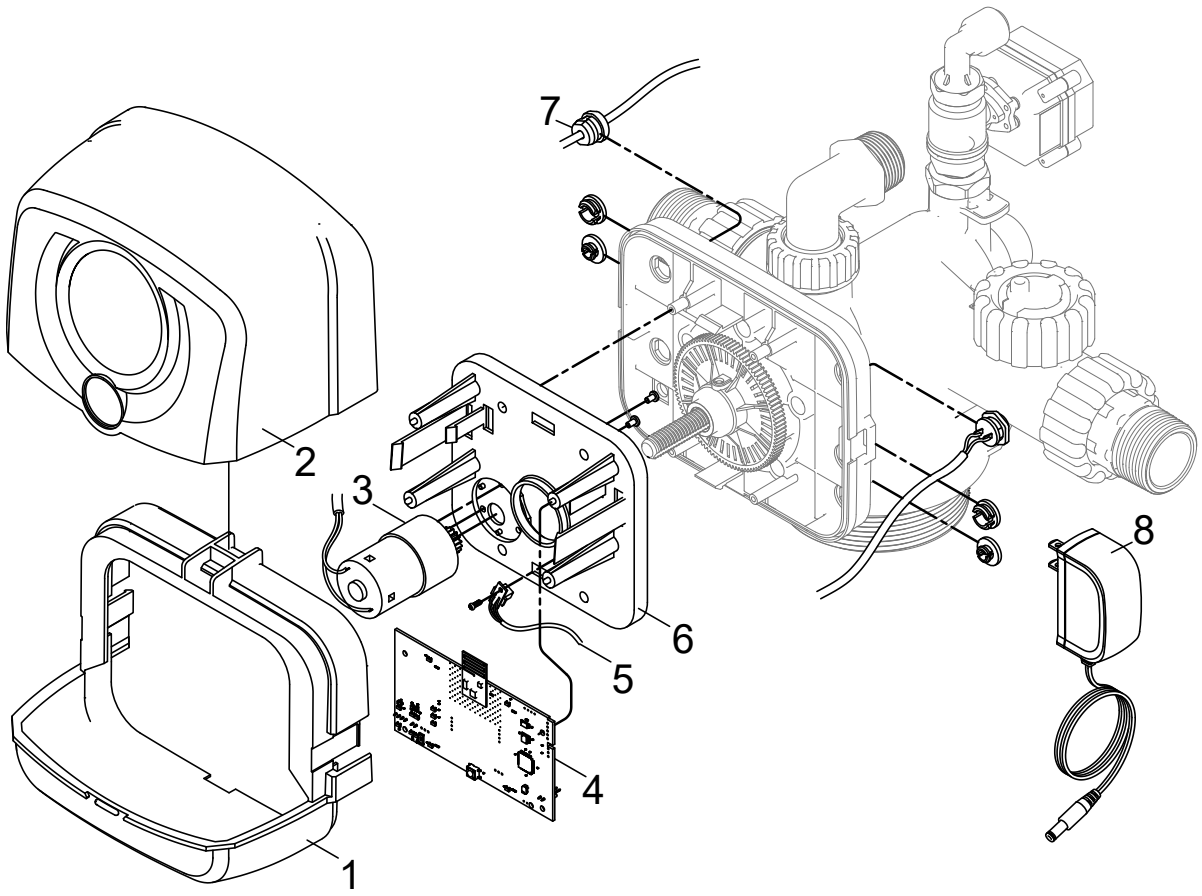
CSB121 VALVE PARTS - INJECTOR ASSY.



Drawing B

No.	Part No.	Description	Qty.
1	CS-DLFC-2.4	Drain Line Flow Control, 2.4 gpm	1
	CS-DLFC-3.5	Drain Line Flow Control, 3.5 gpm	
	CS-DLFC-4	Drain Line Flow Control, 4 gpm	
	CS-DLFC-5	Drain Line Flow Control, 5gpm	
	CS-DLFC-8	Drain Line Flow Control, 8 gpm	
	CS-DLFC-9	Drain Line Flow Control, 9 gpm	
	CS-DLFC-10	Drain Line Flow Control, 10 gpm	
	CS-DLFC-12	Drain Line Flow Control, 12 gpm	
	CS-DLFC-15	Drain Line Flow Control, 15 gpm	
	CS-DLFC-20	Drain Line Flow Control, 20 gpm	
	CS-DLFC-25	Drain Line Flow Control, 25 gpm	
	CS-DLFC-32	Drain Line Flow Control, 32 gpm	
2	20125X016	DLFC Retainer	1
3	20125X033	1" NPT Drain Line Connector	1
4	CS125-0#	Red #0 Injector, with screen and cap, CS125	1
	CS125-1#	White #1 Injector, with screen and cap, CS125	
	CS125-2#	Blue #2 Injector, with screen and cap, CS125	
	CS125-3#	Yellow #3 Injector, with screen and cap, CS125	
	20125X026	Brine Injector Plug for Filters, with screen and cap	
5	20125X015	Red Locking Clip	1

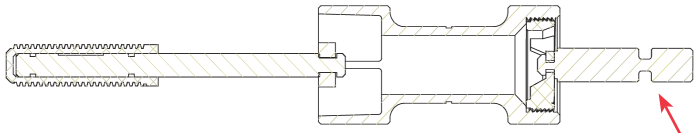
CSB121 POWERHEAD



No.	Part No.	Description	Qty.
1	20125X017	Commercial Slide Cover Bracket	1
2	20125X018	Commercial Slide Cover	1
3	20125X019	Geared Piston Motor	1
4	EVB-019-BT-C	Commercial Control Board	1
5	20125X020	Optical Position Encoder	1
6	20125X021	Commercial Power Head Backplate	1
7	20125X027	Power Supply 1A 12VDC 10 ft. Cord	1

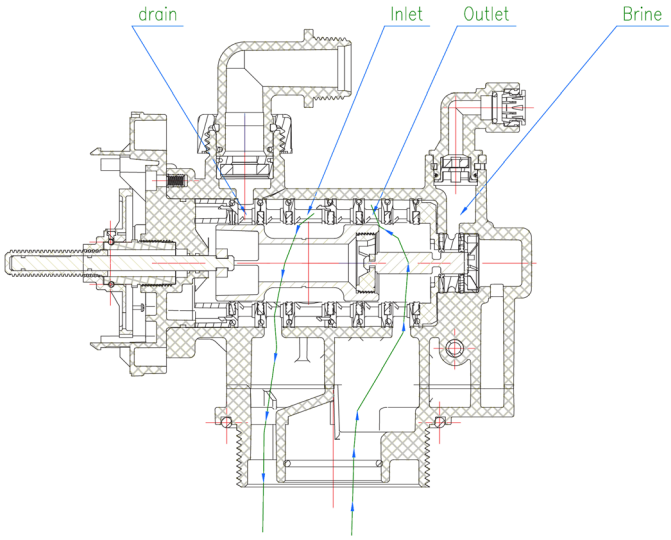
VALVE BODY FLOW DIAGRAMS

Untreated water bypassing during regeneration piston

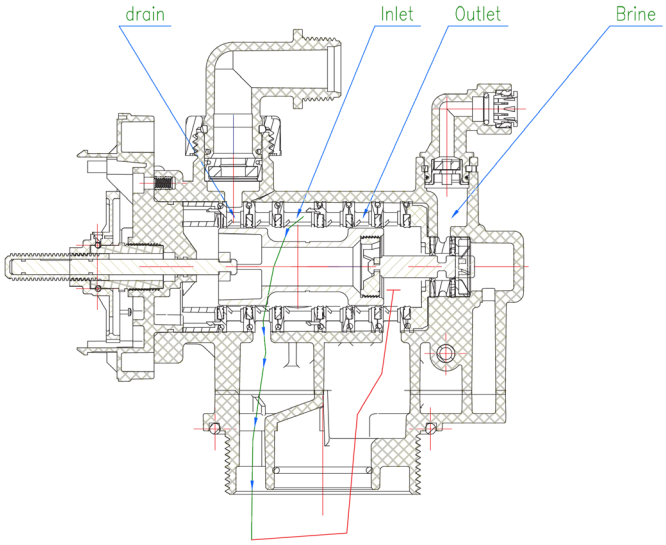


Note: Brine Piston for Softeners only

Service

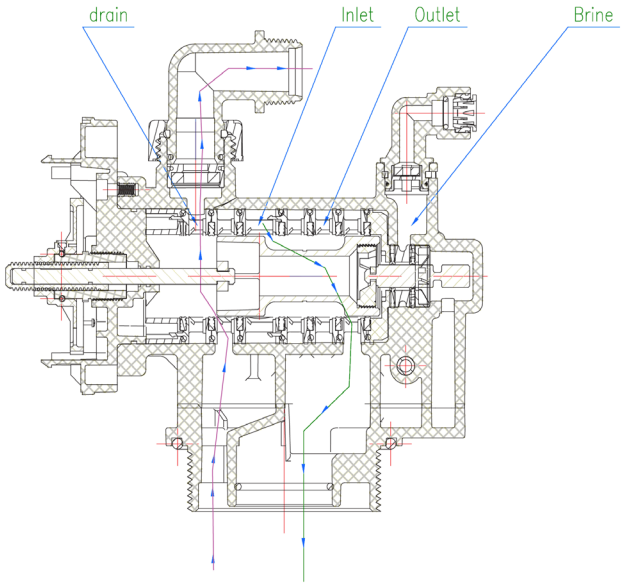


Outlet Shutoff

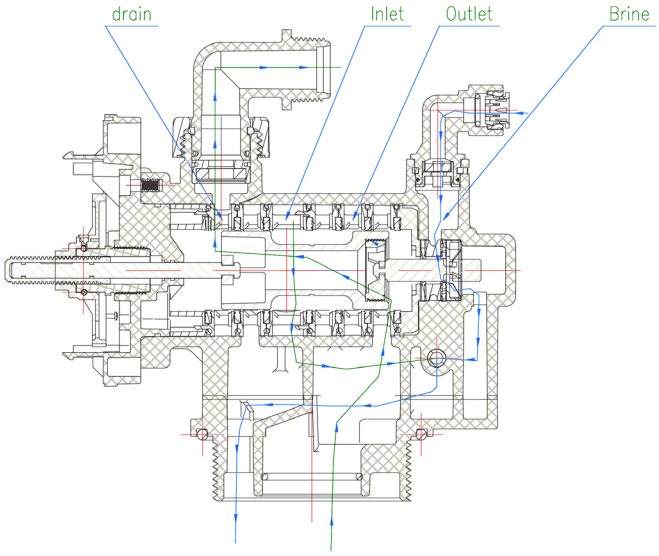


VALVE BODY FLOW DIAGRAMS

Backwash

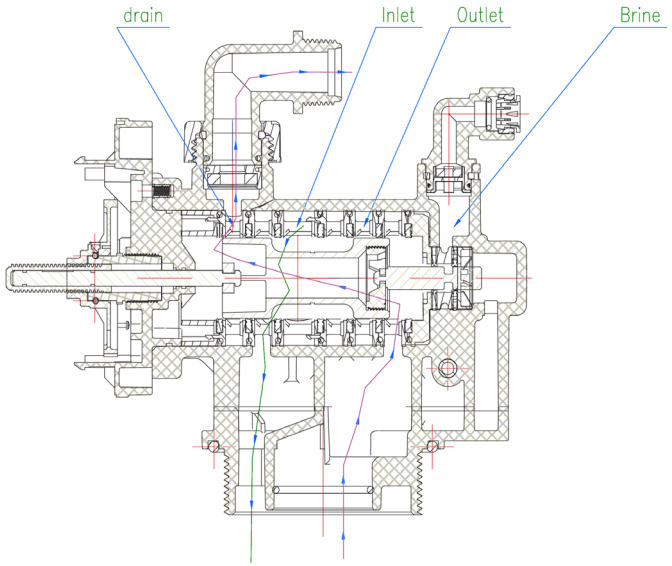


Downflow Brine

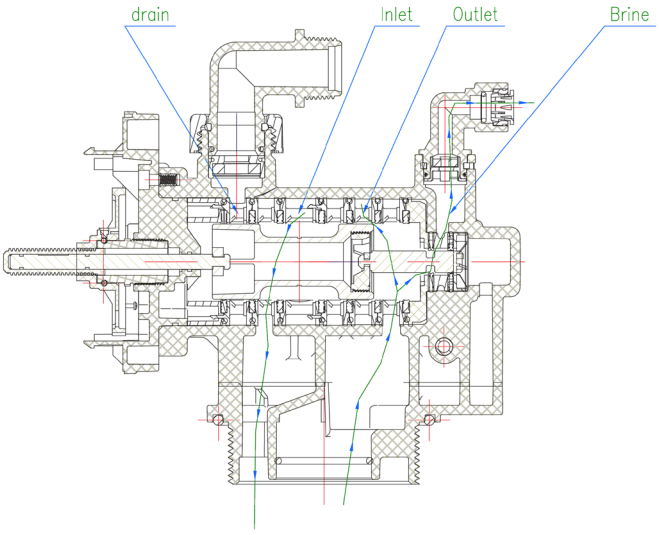


VALVE BODY FLOW DIAGRAMS

Rinse

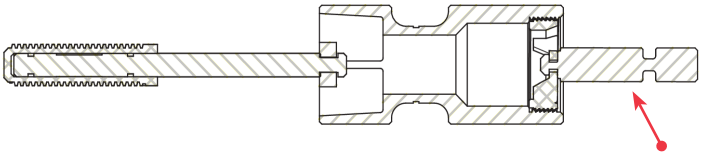


Brine Fill



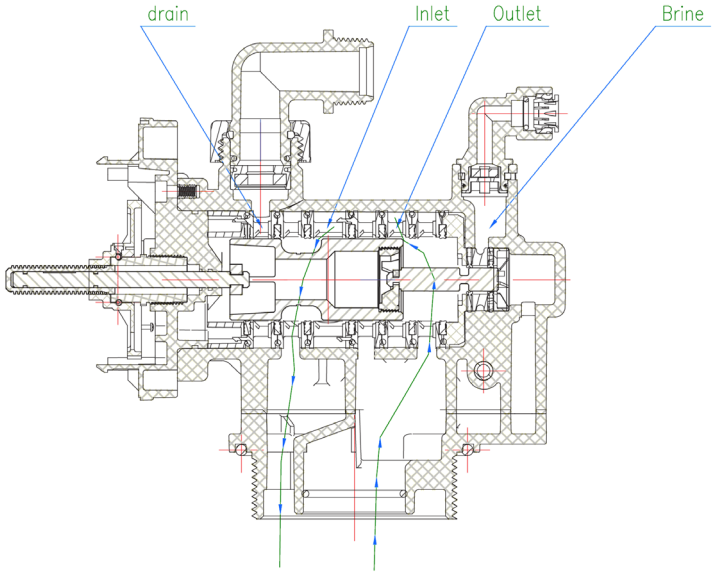
VALVE BODY FLOW DIAGRAMS

Outlet water shutoff during regeneration piston

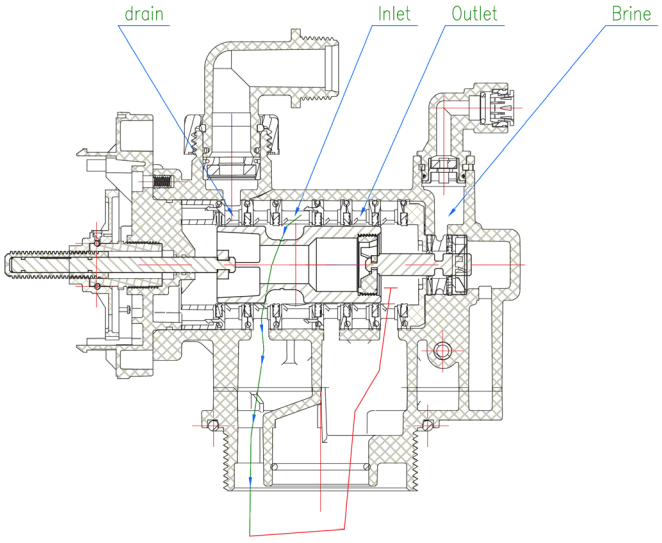


Note: Brine Piston for Softeners only

Service

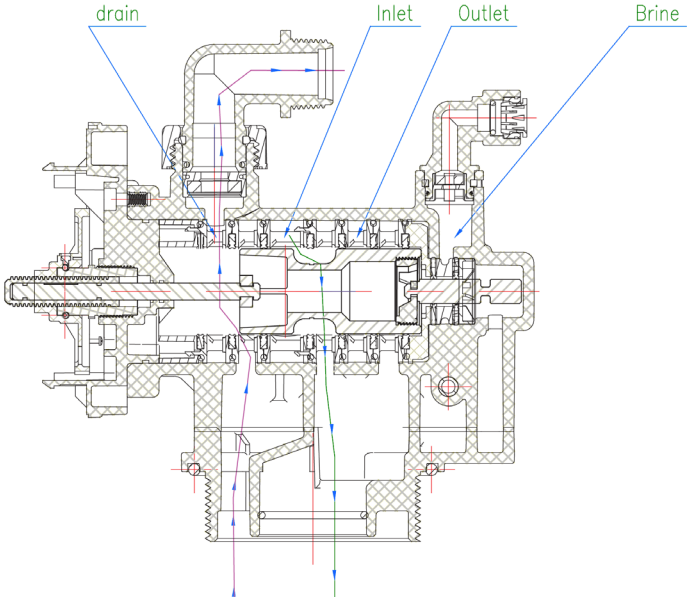


Outlet Shutoff

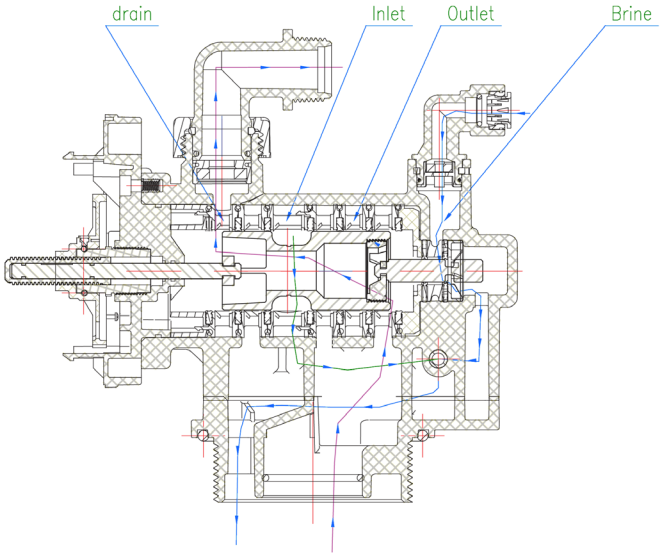


VALVE BODY FLOW DIAGRAMS

Backwash

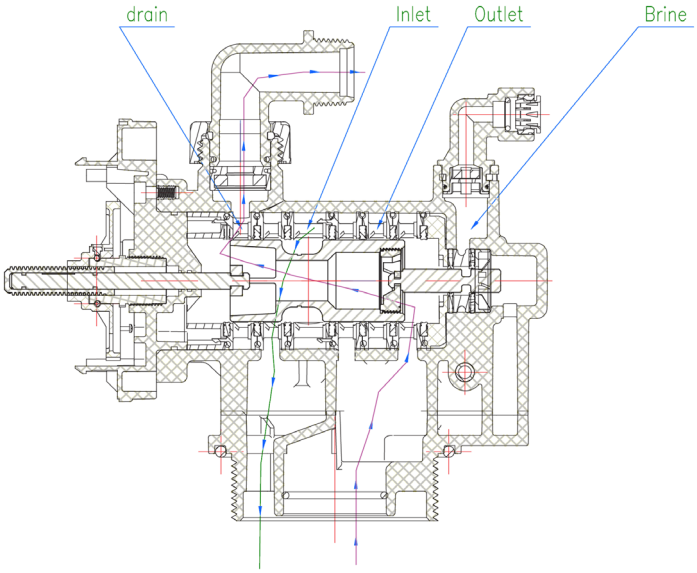


Downflow Brine

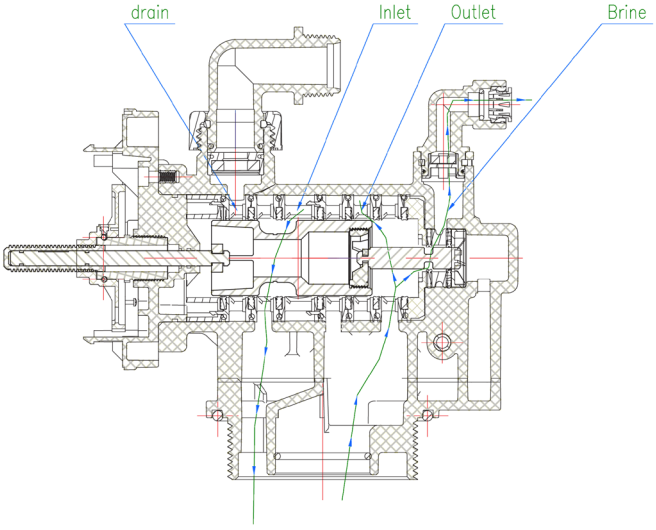


VALVE BODY FLOW DIAGRAMS

Rinse



Brine Fill



CHANDLER SYSTEMS

WATER TREATMENT EQUIPMENT

This warranty cannot be transferred - it is extended only to the original purchaser or first user of the product. by accepting and keeping this product, you agree to all of the warranty terms and limitations of liability described below.

Important Warning: Read carefully the Chandler Systems, Inc. Equipment Installation, Operating and Maintenance Instructions Manual to avoid serious personal injury and property HAZARDS and to ensure safe and proper care of this product.

*FOR AS LONG AS YOU OWN AND LIVE IN YOUR SINGLE FAMILY HOME, this warranty covers your water treatment equipment, if you are the first user of this Chandler Systems, Inc. water treatment equipment and purchased it for single family home use - subject to all of the conditions, limitations and exclusions listed below. Purchasers who buy the Chandler Systems water treatment equipment for other purposes, and other component parts are subject to more limited warranties and you should read all of the terms included in this form to make sure you understand your warranty.

What is covered by this warranty?
Chandler Systems, Inc. warrants that at the time of manufacture, the water treatment equipment shall be free from defects in material and workmanship as follows :

Proprietary Control Valves.....7 years
Other Softener/Filter Control Valves.....5 years

Additional Terms & Conditions
What Chandler Systems, Inc. will do if you have a covered warranty claim Chandler Systems, Inc. will at its option either make repairs to correct any defect in material or workmanship or supply and ship either new or used replacement parts or products. Chandler Systems will not accept any claims for labor or other costs.

Additional Exclusions and Limitations

This warranty is non-transferable and does not cover any failure or problem unless it was caused solely by a defect in material or workmanship. In addition, this warranty shall not apply :

- If the water treatment equipment is not correctly installed, operated, repaired and maintained as described in the Installation, Operating & Maintenance Instructions Manual provided with the product.
- Defects caused as a direct result of the incoming water quality
- If the tank is not the size indicated for the supply line size of the installation, as described in the manual.
- If the unit has not always been operated within the factory calibrated temperature limits, and at a water pressure not exceeding 125 psi
- To any failure or malfunction resulting from abuse (including freezing), improper or negligent; handling, shipping (by anyone other than Chandler Systems, Inc.), storage, use, operation, accident; or alteration, lightning, flooding or other environmental conditions;
- To any failure or malfunction resulting from failure to keep the unit full of potable water, free to circulate at all times; and with the tank free of damaging water sediment or scale deposits;
- This warranty does not cover labor costs, shipping charges, service charges, delivery expenses, property damage, administrative fees or any costs incurred by the purchaser in removing or reinstalling the water treatment equipment.
- The warranty does not cover any claims submitted to Chandler Systems, Inc. more than 30 days after expiration of the applicable warranty, and does not apply unless prompt notice of any claim is given to an authorized Chandler Systems or a designated contractor is provided access to the installation and to the water treatment equipment.

THESE WARRANTIES ARE GIVEN IN LIEU OF ALL OTHER EXPRESS WARRANTIES. NO CHANDLER SYSTEMS, INC. REPRESENTATIVE OR ANY OTHER PARTY IS AUTHORIZED TO MAKE ANY WARRANTY OTHER THAN THOSE EXPRESSLY CONTAINED IN THIS WARRANTY AGREEMENT.

Additional Warranty Limitations
ANY IMPLIED WARRANTIES THE PURCHASER MAY HAVE, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE APPLICABLE TIME PERIODS SPECIFIED ABOVE. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

Limitations of Remedies
The remedies contained in this warranty are the purchaser's exclusive remedies. In no circumstances will Chandler Systems, Inc. or the seller of the product be liable for more than, and purchaser-user's remedies shall not exceed, the price paid for the product. In no case shall Chandler Systems, Inc. or seller be liable for any special, incidental, contingent or consequential damages. Special, incidental, contingent and consequential damages for which Chandler Systems, Inc. is not liable include, but are not limited to, inconvenience, loss or damage to property, consequential mold damage, loss of profits, loss of savings or revenue, loss of use of the products or any associated equipment, facilities, buildings or services, downtime, and the claims of third parties including customers. Some states do not allow the exclusion or the limitation of incidental or consequential damages, so the above limitations or exclusion may not apply to you.

What to do if you have a problem covered by this warranty
Any warranty coverage must be authorized by Chandler Systems, Inc. Contact the person from whom you purchased the product, who must receive authorization from Chandler Systems, Inc. .

If your product is new and not used and you wish to return it, contact Chandler Systems, Inc.

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