





## **OWNER'S MANUAL**



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## WARNINGS



SYSTEM MUST BE INSTALLED AND MAINTAINED PER THE MANUFACTURER'S RECOMMENDATIONS IN THIS MANUAL. FALURE TO DO SO MAY CAUSE INJURY, EQUIPMENT FAILURE AND/OR DAMAGE, AND WILL RESULT IN WARRANTY BEING VOID.



RISK OF SHOCK! ELECTRICAL INSTALLATION SHOULD BE DONE BY QUALIFIED, TRAINED ELECTRICIANS. INSTALLATION SHOULD BE TO LOCAL CODES.



ALWAYS TURN OFF THE UNIT, SHUT OFF THE FEEDWATER, RELIEVE PRESSURE, AND DISCONNECT THE ELECTRICAL POWER BEFORE WORKING ON THE UNIT.



DO NOT USE WHERE THE WATER IS MICROBIOLOGICALLY UNSAFE OR OF UNKNOWN QUALITY WITHOUT ADEQUATE DISINFECTION BEFORE OR AFTER THE SYSTEM.



NEVER ALLOW THE UNIT TO FREEZE OR OPERATE WITH A FEEDWATER TEMPERATURE/ PRESSURE OUTSIDE THE RECOMENDED PARAMETERS (34-110°F / 20-125 PSI).



SYSTEM MUST BE INSTALLED IN ACCORDANCE WITH LOCAL PLUMBING CODES AND REGULATIONS. CONTACT WCC (WATER CONTROL CORPERATION) FOR MORE INFORMATION.



READ THE ENTIRE MANUAL BEFORE INSTALLING, OPERATING, OR MAINTAINING THIS EQUIPMENT.



THIS SYSTEM CONTAINS FLOWING WATER, UNDER PRESSURE. ENSURE THAT INSTALL LOCATION HAS ADEQUATE DRAINAGE AND WATERPROOFING TO ACCOMMODATE POTENTIAL LEAKAGE AND/OR OVERFLOW SITUATIONS. FAILURE TO DO SO COULD RESULT IN FLOODING/DAMAGE.



A VACUUM BREAK IS REQUIRED ANY TIME A VACUUM SITUATION MAY OCCUR. THIS IS COMMON ON WELLS, SYSTEMS WITH BOOSTER PUMPS AFTER THE UNIT, OR WHEN THE SYSTEM IS INSTALLED IN AREAS OF VARYING ALTITUDES. NO WARRANTY IS CONSIDERED IF THE SYSTEM HAS BEEN SUBJECTED TO A VACUUM. A VACUUM BREAK SHOULD BE INSTALLED BETWEEN THE SOFTENER AND THE POTENTIAL CAUSE OF A VACUUM.







## **BASIC PRINCIPLES**

A water softener works via a process known as Ion Exchange. In this process, a special media bed is used to exchange undesirable hardness minerals, including calcium, potassium, and magnesium (as well as low levels of iron and manganese) for something more desirable -- in this case, a small amount of sodium.

A water softener uses a mechanically driven control valve. During normal operation, this valve distributes the flow of raw (hard) water evenly over the top of the media bed. As the hard water passes down through the media, hardness minerals -- primarily calcium, which exists in solution in a calcium bicarbonate form -- are removed from solution and affixed to the media. In place of this calcium, trace amounts of sodium ions are released. What was calcium carbonate dissolved in the water becomes sodium bicarbonate (i.e., baking soda).

Once the resin has absorbed all the hardness minerals, and released all the sodium, that it can, regeneration is required. Regeneration is the process of removing calcium/hardness minerals from the media and resetting it with fresh sodium ions. To achieve this, a piston in the softener control valve changes position. The media is first backwashed, to lift and unpack the bed. Next, it is bathed in a supersaturated brine (sodium chloride) solution. This bombards the media with sodium ions, forcing the calcium/hardness minerals off and sending them down the drain. A relatively small percentage of sodium ions remain on the media, though the majority pass to the drain as well. After this brine cycle, the media is rinsed off, the brine tank is refilled, and the system goes back into service.

When a single tank water softener regenerates, an internal bypass is opened in the control valve. This allows the facility to be served by hard water during the regeneration period. Typically, this occurs in the middle of the night (2AM being the standard setting). Multi-tank systems regenerate one tank at a time, with the non-regenerating tanks remaining online (with no periods of hard water being sent to the facility).

Many multi-tank commercial softening systems feature a Progressive Flow functionality. When building flow rates are low, only one tank is online/active. As water usage increases, more and more units come online. Conversely, as usage decreases, tanks are progressively removed from service and put back into standby mode. By bringing tanks on and offline, based on demand, we can maximize the softening capacity and efficiency of the media in each tank. The electronics in the control valves keep track of usage time for each individual tank. Tanks are rotated on and offline in a manner that equalizes usage across all tanks over the course of 24 hours.

Another common option on larger commercial softening systems is Brine Reclamation, which utilizes an electronic control system and a 3-way motorized valve to recycle a portion of the supersaturated brine (salt) water that is normally sent down the drain during regeneration. When the recycle interval ends, the water eventually does go to drain. This ensures fresh brine for each new regeneration. By utilizing Brine Reclamation, a facility will normally see a salt usage reduction of around 25%-35%, without any negative effects on softener capacity, efficiency, or lifespan.

For more information on commercial water softening systems, please visit WCC's website at: watercontrolinc.com or call us at 763-427-9638.

We thank you for your business!

Water Control Corporation 7150 143rd Ave NW • Ramsey, MN 55303 hone: 763-427-9638 • Fax: 763-427-5665 www.watercontrolinc.com





## **SOFTENER OPERATION**

As water enters the softener, it passes over a resin bed in a special tank. The resin consists of tiny beads of a plastic called styrene. These beads attract and hold sodium ions and exchange the sodium for hardness ions when encountered. Over time, the resin becomes saturated with hardness ions and no longer removes hardness materials. The softener goes into a "regeneration" to flush hardness materials to the drain and refresh the resin with sodium. Regeneration of single tank systems is typically programmed to take place in the middle of the night when little or no water is in use. Regeneration of individual tanks in a multi-tank system occurs immediately (as needed), with the other tanks remaining online/ available.

#### **REGENERATION CONSISTS OF FOUR CYCLES:**

#### 1. CYCLE: BACKWASH POSITION

Backwash is a rapid upward flow of water that loosens the resin bed and flushes iron particles, dirt and sediments filtered in the bed out to the drain.

#### 2. CYCLE: BRINE DRAW / SLOW RINSE POSITION

Brine Draw is the process in which brine is drawn out of the brine cabinet and passed through the resin in a downward direction. This rinses the resin and large amounts of sodium ions re- place the hardness ions accumulated during service. Slow Rinse. After brine is completely removed from the brine cabinet into the resin tank the brine valve closes. Water replaces any remaining brine from the resin, flushing hardness ions removed from the resin to drain.

#### 3. CYCLE: FAST RINSE POSITION

Fast Rinse is a fast flow of water down through the resin tank that follows a Backwash. This flushes all remaining brine from the tank and packs the resin bed for softening efficiency.

#### 4. CYCLE: BRINE FILL

Brine is water saturated with large amounts of a salt (sodium chloride). During Brine Fill, water flows into the salt storage area after each regeneration and dissolves salt. During the regeneration process, hardness ions on the resin beads are replaced or exchanged for sodium ions from the brine solution.

#### NOTE: SERVICE

When the softener is in service, normal operation is occurring. Water is flowing through the softener and hardness minerals are being removed from the water.







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## **EF/XF SERIES** WATER SOFTENERS

WCC's "EF" and "XF" Series softeners feature 1¼" water-ways with 1" and 1¼" service connections respectively, light duty electronic control valves, high-strength fiberglass-reinforced mineral tanks, and long-lasting synthetic cation resin. This series is perfectly designed for retail spaces, restaurants, clinics, and office complexes.



Model Series	Ex	change Capac (grains)	ity*			Fl	ow Rate (Gi	PM)	Pipe Si	ze (in)	Back	Resin	Brine Resin Tank		Tank Size (in)		Approx. Ship
Number	Min 1	Mid <sup>2</sup>	Max <sup>3</sup>	Valve Size (in)	Cv	7 psid	Cont. 15 psid	Peak 25 psid	Service	Drain	(GPM)	(cu.ft.)	Capacity (lbs)	(min)	Resin	Salt	Weight (lbs)
EF-32-MR	23000	27000	30000	1 1⁄4	5.7	15.0	22	28	1	3/4	3	1	250	88	10 X 44	18 X 33	125
EF-48-MR	36800	43200	48000	1 1/4	4.9	13.0	19	25	1	3/4	1.7	1.6	225	88	10 X 54	18 X 33	150
EF-60-MR	46000	54000	60000	1 1/4	6.5	17.1	25	32	1	3/4	3	2	225	88	12 x 52	18 X 33	200
EF-90-MR	69000	81000	90000	1 ¼	6.2	16.4	24	31	1	3/4	5	3	650	90	14 x 65	24 X 50	300
EF-120-MR	92000	108000	120000	1 ¼	6.5	17.1	25	32	1	3/4	7	4	650	94	16 x 65	24 X 50	350
EF-150-MR	115000	135000	150000	1 ¼	5.4	14.3	21	27	1	3/4	5	5	625	96	16 x 65	24 X 50	425
EF-150X-MR	115000	135000	150000	1 ¼	7.0	18.4	27	35	1	3/4	9	5	625	96	18 x 65	24 X 50	450
EF-180-MR	138000	162000	180000	1 ¼	6.7	17.8	26	34	1	3/4	12	6	600	96	21 x 62	24 X 50	600
XF-30-MR	23000	27000	30000	1 1⁄4	5.7	15.0	22	28	1 1⁄4	3/4	3	1	250	88	10 X 44	18 X 33	125
XF-48-MR	36800	43200	48000	1 1/4	4.9	13.0	19	25	1 1/4	3/4	1.7	1.6	225	88	10 X 54	18 X 33	150
XF-60-MR	46000	54000	60000	1 1/4	6.5	17.1	25	32	1 1/4	3/4	3	2	225	88	12 x 52	18 X 33	200
XF-90-MR	69000	81000	90000	1 1/4	6.2	16.4	24	31	1 1/4	3/4	5	3	650	90	14 x 65	24 X 50	300
XF-120-MR	92000	108000	120000	1 ¼	6.5	17.1	25	32	1 1/4	3/4	7	4	650	94	16 x 65	24 X 50	350
XF-150-MR	115000	135000	150000	1 ¼	5.4	14.3	21	27	1 1/4	3/4	5	5	625	96	16 x 65	24 X 50	425
XF-150X-MR	115000	135000	150000	1 ¼	7.0	18.4	27	35	1 1⁄4	3/4	9	5	625	96	18 x 65	24 X 50	450
XF-180-MR	138000	162000	180000	1 1/4	6.7	17.8	26	34	1 1/4	3/4	12	6	600	96	21 x 62	24 X 50	600

<sup>1</sup> Based on 7 lbs salt per cubic foot.

<sup>2</sup> Based on 10 lbs salt per cubic foot.

<sup>3</sup> Based on 13 lbs salt per cubic foot.

All "EF and XF" Series softeners utilize series 5812 controllers.

\* Exchange capacity based on treating water with 10 gpg total hardness as CaCo3 and 400 ppm total dissolved solids. Capacities may vary with different influent water characteristics and other factors. Due to varying water conditions, tank sizes and water pressures, the above should only be used as a guideline.

WITH OVER 50 YEARS OF EXPERIENCE IN THE WATER CONDITIONING AND PLUMBING INDUSTRIES, WCC CAN DESIGN AND MANUFACTURE EQUIPMENT FOR VIRTUALLY ANY APPLICATION. WE OFFER A COMPLETE MENU OF SERVICES, INCLUDING WATER TESTING, SYSTEM SIZING, BIM MODELING (REVIT®), DELIVERY, SETUP, STARTUP, AND AFTER-MARKET SERVICE PLANS. WE MAINTAIN A UNIQUE FOCUS ON MECHANICAL ENGINEERS, CONTRACTORS, AND THE PLUMBING INDUSTRY. DEPEND ON US TO PROVIDE QUALITY, INNOVATIVE SOLUTIONS FOR ALL YOUR COMMERCIAL WATER CONDITIONING NEEDS.

### HOW TO SPECIFY "EF" or "XF" SERIES SOFTENERS:

ORDER CODE:			EF	] -		- SIMPL	EX (MR)
MODEL (from other sid							
SYSTEM SIZE Single Tank:	SIMPLEX (MR)						
ORDER CODE:			XF	] -		-	
MODEL (from other side)							
SYSTEM SIZE Single Tank:	SIMPLEX (MR)						

#### Additional Options: (check options below)

XF ONLY D Brine Reclamation: Re-uses brine solution for significant salt savings (approx 30%)

- □ Steel Tank(s) (optional ASME Rating)
- Accu-Pipe Skid-Mounted System (pre-plumbed\*, pre-wired system, mounted on heavy-duty powder-coated steel skid)
- □ Accu-Pipe LS: Same as Accu-Pipe System, less skid base (piping/wiring only)
- □ Brine Silo (large volume salt storage / brine generation & delivery system)
- □ Salt Sock and Access Door (lockable) for blow-in salt delivery

\*Standard piping is grooved, type L copper, other materials available.

For a detailed, model-specific specification, please contact WCC (Water Control Corporation). Detailed drawings also available upon request (CAD<sup>®</sup> or Revit<sup>®</sup>).

Water softening system requires a minimum inlet water pressure of 30 psig and maximum of 120 psig. If resin tank is subject to vacuum, an adequate vacuum relief valve must be properly installed. Tank warranty is void if subjected to vacuum. Feed water temperature shall be between 40% and 100%. Each control valve requires a 120 volt wall outlet (2-prong , 1.3FLA, 60Hz).







To find your authorized WCC representative, please visit: www.watercontrolinc.com/ representative-locator/. Go to www.watercontrolinc.com, where you'll find detailed product specification info and application design questionnaires. Call 1-866-405-1268 or email techsupport@watercontrolinc.com.

#### We look forward to working with you!

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## Single Tank (MR) Models WATER SOFTENER DIMENSIONS

	(A)	(B)	(C)	(D)	(E)	(F)	
Model Series Number	Resin Tank Diameter (+/-0.5 in)	Resin Tank Height (+/-1 in)	Inlet/ Outlet Height (in)	Overall Height (in)	Brine Tank Diameter (in)	Overall Length (in)	
EF-30-MR	10.0	44.6	46.0	53.0	18.0	32.0	
EF-48-MR	10.0	47.7	54.0	56.0	18.0	32.0	
EF-60-MR	12.0	53.4	55.0	61.0	18.0	34.0	
EF-90-MR	14.0	66.1	68.0	74.0	24.0	42.0	
EF-120-MR	16.0	66.2	68.0	74.0	24.0	44.0	
EF-150-MR	16.0	66.2	68.0	74.0	24.0	44.0	
EF-150X-MR	18.0	67.0	69.0	75.0	24.0	46.0	
EF-180-MR	21.0	67.0	69.0	75.0	24.0	49.0	Model
XF-30-MR	10.0	44.6	46.0	53.0	18.0	32.0	Number
XF-48-MR	10.0	47.7	54.0	56.0	18.0	32.0	(con't)
XF-60-MR	12.0	53.4	55.0	61.0	18.0	34.0	
XF-90-MR	14.0	66.1	68.0	74.0	24.0	44.0	LF-90-MR
XF-120-MR	16.0	66.2	68.0	74.0	24.0	44.0	LF-120-MR
XF-150-MR	16.0	66.2	68.0	74.0	24.0	44.0	LF-150-MR
XF-150X-MR	18.0	67.0	69.0	75.0	24.0	46.0	LF-150X-MR
XF-180-MR	21.0	67.0	69.0	75.0	24.0	49.0	LF-180-MR
SF-30-MR	10.0	47.7	50.0	54.0	18.0	32.0	LF-210-MR
SF-48-MR	12.0	53.4	55.0	60.0	18.0	34.0	LF-240-MR
SF-60-MR	12.0	53.4	55.0	60.0	18.0	34.0	LF-300-MR
SF-90-MR	14.0	66.1	68.0	73.0	24.0	42.0	LF-360-MR
SF-120-MR	16.0	66.2	68.0	73.0	24.0	44.0	LF-450-MR
SF-150-MR	16.0	66.2	68.0	73.0	24.0	44.0	LF-600-MR
MF-48-MR	12.0	53.4	55.0	60.0	18.0	34.0	HF-300-MR
MF-60-MR	12.0	53.4	55.0	60.0	18.0	34.0	HF-450-MR
MF-90-MR	14.0	66.1	68.0	73.0	24.0	44.0	HF-480-MR
MF-120-MR	16.0	66.2	68.0	73.0	24.0	44.0	HF-600-MR
MF-150-MR	16.0	66.2	68.0	73.0	24.0	44.0	HF-810-MR
MF-180-MR	21.0	67.0	69.0	74.0	24.0	49.0	HF-900-MR
MF-210-MR	21.0	67.0	69.0	74.0	24.0	49.0	HF-990-MR
MF-240-MR	24.0	74.2	76.0	81.0	24.0	52.0	HF-1200-MR
MF-300-MR	24.0	74.2	76.0	81.0	24.0	52.0	HF-1800-MR

 $\mathcal{A}$ 

	(A)	(B)	(C)	(D)	(E)	(F)
Model Series Number (con't)	Resin Tank Diameter (+/-0.5 in)	Resin Tank Height (+/-1 in)	Inlet/ Outlet Height (in)	Overall Height (in)	Brine Tank Diameter (in)	Overall Length (in)
LF-90-MR	14.0	66.1	68.0	78.0	24.0	42.0
LF-120-MR	16.0	66.2	68.0	78.0	24.0	44.0
LF-150-MR	16.0	66.2	68.0	78.0	24.0	44.0
LF-150X-MR	18.0	67.0	69.0	79.0	24.0	46.0
LF-180-MR	21.0	67.0	69.0	79.0	24.0	49.0
LF-210-MR	21.0	67.0	69.0	79.0	24.0	49.0
LF-240-MR	24.0	74.2	76.0	86.0	24.0	52.0
LF-300-MR	24.0	74.2	76.0	86.0	24.0	52.0
LF-360-MR	30.0	78.9	81.0	91.0	30.0	64.0
LF-450-MR	30.0	78.9	81.0	91.0	30.0	64.0
LF-600-MR	36.0	80.4	83.0	92.0	39.0	79.0
HF-300-MR	24.0	77.0	82.0	92.0	24.0	52.0
HF-450-MR	30.0	79.7	85.0	95.0	30.0	64.0
HF-480-MR	30.0	79.7	85.0	95.0	30.0	64.0
HF-600-MR	36.0	82.3	87.0	97.0	39.0	79.0
HF-810-MR	42.0	72.5	78.0	88.0	39.0	85.0
HF-900-MR	42.0	72.5	78.0	88.0	50.0	96.0
HF-990-MR	48.0	72.5	87.0	97.0	50.0	102.0
HF-1200-MR	48.0	72.5	87.0	97.0	50.0	102.0
HF-1800-MR	63.0	86.0	104.0	114.0	50.0	117.0

All dimensions are approximate and subject to change without notice. Please consult our technical department for additional system information.

SPEAK DIRECTLY WITH ONE OF WCC'S DESIGN ENGINEERS

Call 1-866-405-1268 or email

techsupport@watercontrolinc.com.

VISIT US ONLINE



Go to www.watercontrolinc.com, where you'll find detailed product specification info and application design questionnaires.

To find your authorized WCC representative, please visit: www.watercontrolinc.com/ representative-locator/.

We look forward to working with you!



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## **INSTALLATION PROCEDURES**

- 1. **IDENTIFY INSTALLATION LOCATION FOR WATER SOFTENER.** Piping should be such that all hard water, except for outside hydrants, flows through softener. This system and installation must comply with state and local laws and regulations.
- CONNECT WATER PIPING. See install diagrams for plumbing layout. Important: Make all sweat-solder connections within 6 inches of softener before applying threaded fittings. Overheating may cause damage to valve. Note: WCC recommends installing isolation valves on the inlet and outlet of each control valve, as well as a full system bypass.
- 3. CONNECT DRAIN LINE. Be sure not to submerse drain line end into drain, as a 1-1/2" minimum air gap must be maintained to prevent potential backflow hazard. Firmly secure at drain, while maintaining a minimum 1-1/2" air gap. Note: Floor drain must be capable of handling full backwash flow rate (see page 6 for backwash rates).
- 4. **CONNECT BRINE LINE.** Connect brine line (supplied in parts bag) to fitting on brine tank, and on the control valve. Tighten both fittings with an adjustable wrench. Note: If you have purchased a setup/startup service, startup agent will connect brine line on site.
- 5. **INSTALL BRINE TANK OVERFLOW LINE**. Install overflow fitting into hole inside of brine tank. An owner-supplied overflow line should then be attached and run to a nearby drain. Failure to run overflow line could cause flooding and water damage should the brine tank overflow. *See the table below for brine tank overflow recommended line size. Note: Line sizes over 0.5 inches are to be hard plumbed to the drain.*

BLFC (gpm)	SOFTENER CAPACITY (kgrains)	BRINE TANK OVERFLOW (in)
1	up to 150	0.5
2	150X - 300	0.75
5	360 - 600	1
10	800 and up	1.5

- 6. **CONNECT TO ELECTRICAL POWER SOURCE.** Connect power cord to a separate 120v, 15-amp, ground fault interrupt (GFI) outlet. Note: Each control valve should have a dedicated 120V outlet
- NOTE: This system is not intended to be used for treating water that is microbiologically unsafe or of unknown quality without disinfection before or after the system.

A vacuum break is required any time a vacuum situation may occur. This is common on wells, systems with booster pumps after the unit, or when the system is installed in areas of varying altitudes. No warranty is considered if the system has been subjected to a vacuum. A vacuum break should be installed between the softener and the potential cause of a vacuum.





## SIMPLEX INSTALLATION DIAGRAM







#### CK10EE, WS1EE & WS125EE Meter Softener Programming



#### **Setting Time of Day**

Push **NEXT** until time of day screen is displayed. Press and hold  $\bigtriangledown$  until **SET TIME** is displayed and the hour flashes once. Press  $\triangle$  or  $\bigtriangledown$  until the correct hour is displayed. Then press **NEXT**. The minutes will flash. Press  $\triangle$  or  $\bigtriangledown$  until the correct minute is displayed. Press **NEXT** to return to the User Display.

### **Typical Installer Programming**

- 1: Press the "**NEXT**" and  $\triangle$  simultaneously for  $\approx$ 3 seconds.
- 2: Use up and down arrow buttons to set HARDNESS to the actual compensated hardness then press "NEXT"
- 3: Use up and down arrow buttons to set REGEN DAY to 21 (or desired alternate) then press "NEXT"
- 4: Use up and down arrow buttons to set TIME REGEN to 2:00 AM (or desired alternate) then press "NEXT"

The main screen will now display the time of day. By pressing the **NEXT** button the screen can display the following items.

Volume Remaining Until the Next Regeneration : Current Flow Rate : Totalizer : Time of Day

**Bypass Valve Operation** 



DIAGNOSTIC MODE



#### BYPASS OPERATION



#### SHUT OFF MODE

NO WATER SUPPLY WATER IS SHUT OFF EXITS FROM THE HOUSE AND THE VALVE



TIM

#### **Regeneration and Error Screens**

**Error Screen** 

#### **Regen Screen** Displays the time remaining in the current cycle. Pressing REGEN advances to the next cycle.

FUI







In Alternator Systems when a unit is waiting to initiate the first cycle step of regeneration, "REGEN Pndg" is displayed.

Alternated flashing Err and error code every 3 seconds. Clear by disconnecting the power supply at the PC board and reconnecting, or press NEXT and



regen Pnd9

"STbY" is displayed in Alternator Systems when a valve is in Standby state.

REGEN simultaneously for 3 seconds.

"REGEN Pndg RINSE FILL" is displayed whenever a zero-capacity tank has transferred to an off-line state and is currently waiting to initiate the second portion of a regeneration cycle. Viewed only when Delayed Rinse and Fill is set to ON.

#### **Button Operation and Function**



REGEN

Scrolls to the next display.

Pressing once and releasing will schedule a regeneration at the preset delayed regeneration time.

Pressing again and releasing will cancel the regeneration.

Pressing and holding for 3 seconds will initiate an immediate regeneration

Pressing while in regeneration will advance to the next cycle.

Pressing in the program levels will go backwards to the previous screen



Changes variable being displayed.

REGEN Key sequence to lock and unlock program settings.



Holding for 3 seconds initiates a control reset. The software version is displayed and the piston returns to the home/service position, resynchronizing the valve.



Used with valve type  $1.0\Gamma$ , holding for at least 3 seconds causes a switch in the tank in Service without cycling the regeneration valve. After tank switch, days remaining and capacity remaining status is retained for each tank until the next regeneration.

#### **Regeneration Cycles and Times**

	Range				
Cycle	Softening	Filtering Regen	Filtering		
	8	8 8	Backwash		
Backwash	1-120 minutes	1-120 minutes	1-120 min.		
Regenerant Draw/Slow Rinse (UP or DN)	1-180 minutes	1-180 minutes	NA		
Fast Rinse	1-120 minutes	1-120 minutes	1-120 min.		
Regenerant Refill	0.1-200.0 lbs.	1-99.0 GAL	NA		
Regenerant Refill 2.0 or 1.5 set to MIN (softening only)	0.1-99.0 minutes	0.1-99.0 minutes	NA		
Service	1-480 minutes	NA	NA		

If 1.5 or 2.0 is selected in Step 2CS, cycles can be set to "oFF".

The user can initiate manual regeneration. The user has the option to request the manual regeneration at the delayed regeneration time or to have the regeneration occur immediately:

- 1. Pressing and releasing the REGEN button. "REGEN TODAY" will flash on the display and the regeneration will occur at the delayed regeneration time. The user can cancel the request by pressing and releasing the REGEN button.
- 2. Pressing and holding the REGEN button for approximately 3 seconds will immediately start the regeneration. The user cannot cancel this request, except by resetting the control by pressing NEXT and REGEN simultaneously for 3 seconds.

#### **User Displays**

**General Operation** 











User 3

Flow Rate.

Displays present flow rate. Not viewed (along with SOFTENING or FILTERING Icon) if ALT A or ALT b is set in CONFIGURATION 4 and the valve is currently in Standby. When 1.0  $\Gamma$  is set in CONFIGURATION 1, the display will indicate the tank currently in Service ("A" or "b") in the leftmost digit.

When the system is operating, one of five displays may be shown. Pressing NEXT will

#### User 4

Displays total volume in gallons since last reset. If a meter is not used this display will be shown but 0 will be displayed.

PRESS ▼ FOR 3 SECONDS TO RESET TO 0.

#### User 5 Shows current time.





#### Setting Time of Day

Push NEXT until time of day screen is displayed. Press and hold  $\checkmark$  until SET TIME is displayed and the hour flashes once. Press  $\blacktriangle$  or  $\checkmark$  until the correct hour is displayed.

Then press NEXT. The minutes will flash. Press  $\blacktriangle$  or  $\blacktriangledown$  until the correct minute is displayed.

Press NEXT to return to the User Displays. Time of day should only need to be set after power outages lasting more than 8 hours, if the battery has been depleted and a power outage occurs, or when daylight saving time begins or ends. If a power outage lasting more than 8 hours occurs, the time of day will flash on and off which indicates the time of day should be reset. If a power outage lasts less than 8 hours and the time of day flashes on and off, the time of day should be reset and the battery replaced.

### User 2

Displays number of days to next regeneration.

alternate between the displays shown below.

### Typical user display. Shows volume remaining to regeneration. This screen will not be viewed if the control is set for time-clock operation.

User 1



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### Commercial Water Softener Startup Procedures

(TECHNICIAN TO INITIAL EACH ITEM SUCCESSFULLY TESTED.)

Date									
Project Name	Project Name/Location								
Technician _									
Model/Serial	Numbe	r							
Number/Size	of Resi	n Tanks							
Size of Brine	Tank _								
Brine Reclaim	n Syster	n							
		□ Meter □ Timeclock □ Progressive Flow □ Alternating							
Installation V	/erifica	tion							
1.		Confirm the system 0&M manual is onsite.							
2.		Confirm 120 VAC power supplied.							
3.		Verify water lines are all properly plumbed, and water is available.							
4.		Verify drain lines properly plumbed.							
5.		Verify meter(s) plumbed in correct direction.							
6.		Verify brine reclamation properly plumbed (if applicable).							
7.		Verify salt is available onsite							
8.		Bypass installed? Yes 🗆 No 🗆 Master Bypass 🗆 Each Valve 🗆							
9.		Water test kit provided to end user (only if specified).							
10.		Fully photographed system and system plumbing.							
Pre-Startup									

2. Install meter cables.

1.

Install brine line tubing.

3.	[		Wire brine reclamation valves (if applicable).
4.	[		Install communication cables between valves
5.	[		Plug in all valves to GFCI approved wall receptacle.
6.	[		Open system bypass and isolate off softener inlets/outlets.
<u>Startup</u>	<u>0</u>		
1.	[		Set time of day on Valve #1.
2.	[		Initiate Manual Regeneration, advance to regeneration cycle 3 (Rapid Rinse) and slowly open softener inlet valve (roughly halfway) to fill mineral tank with water
3.	[		Once water is running to the drain, advance from regeneration cycle 3 (Rapid Rinse) back to the home screen. Reinitiate a manual regeneration and remain in cycle 1 (Backwash). With inlet valve halfway open, allow water flow and air expulsion. Verify all air is purged.
4.	[		Once all air is purged, fully open softener inlet valve to allow full backwash flow to drain. Continue until discharge water is free and clear of resin/debris.
5.	[		Advance to regeneration cycle 4 (Brine Tank Refill). Allow approximately 6 inches of water to fill in brine tank.
6.	[		Advance back through Service cycle (home screen) and cycle 1 (Backwash), to cycle 2 (Brine and Rinse). Verify water is properly drawn from brine tank.
7.	[		Close softener inlet bypass valve again. Repeat steps 2 – 5 for any additional valves, addressing each valve individually.
8.	[		When purging and testing the final valve, allow cycle 2 (Brine & Rinse) to run until brine tank is dry.
9.	[		Once step 7 is complete, advance final valve to cycle 4 (Brine Tank Refill) and allow cycle to run completely, so that brine tank has correct service water level upon completion.
10	). [		Open system inlets/outlets and close system bypass.
Operat	ion Veril	ficatio	<u>n</u>
1.	[		Run softened water fixtures in facility and verify proper meter operation for each valve, individually (use regen button to advance to different valves).
2.	[		If possible, run larger loads in facility to verify Progressive Flow (tank staging) is functioning correctly, per the flow rates indicated in the system specifications (Note, if necessary, valves may be temporarily re-programmed to actuate Progressive Service at lower flow rates, for confirmation of operation. This requires entering the system Master Programming Functionality. It also requires returning all set points to their previous levels when completed! Contact WCC for more details).
3.	[		If Brine Reclamation system is installed, initiate regeneration steps 2–4 (Brine Draw, Rapid Rinse, and Brine Refill) on Valve #1. Observe steps 2–4 to ensure that Brine Reclamation solenoid valves are functioning properly.

Brine Tank Fill and Final Observations		WCC STARTUP PROCEDURES   PG 3/3							
1. Add salt to brine tan	ık. How many lbs.?								
2. Other thoughts/cond	Other thoughts/concerns about this system								
3. Warranty Activated?	Warranty Activated? Yes $\square$ No $\square$ If no, list any items that must be addressed prior to warranty activated								
Trainees Present									
Name	Organization	Email							
Signature(s) of Start-Up Agents									
Signature:									
Signature:									
Signature:									
Signature of Installing Contractor									
I CERTIFY THAT STARTUP AND TRAINING	HAVE BEEN COMPLETED PER AGREEMENT.								
Name:									
Company:									
Signature:									
Date:									

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### **Commercial Water Softener** Maintenance Procedures

(TECHNICIAN TO INITIAL EACH ITEM SUCCESSFULLY TESTED.)

Date		
Project Name	P/Location	
Technician _		
Model/Serial	Number	
Pre-Mainten	ance Audit Checklist	
1.	Test Water Quality Levels (Hardness on Cold/Hot)	
2.	Check for Blinking Time? Yes $\square$ No $\square$	
3.	Check Volume of Meter (Per System)	
4.	Verify Appropriate Inlet Pressure (If Applicable)	
5.	Verify System Outlet Pressure (If Applicable)	
6.	Inspect Brine Tank and Overflow	
7.	Check Brine Tank for Bridging/Salt Quality/Water Level	
8.	Verify Correct Solenoid Valve Operation (If Applicable)	
9.	Verify Correct Programming for Specific Softener	
10.	Test/Verify Brine Reclamation Operation	
11.	Check Inlet/Outlet Bypass	
Scheduled M	aintenance Procedures	
1.	Cycle Test Water Softener (Manual Regeneration)	
	Check for Leaks	
	Check Meters Counts Down Properly	
	Check If Brine Line Draws Water	
	Check Brine Line Refill	WCC MAINTENANCE PROCEDURES   PAGE 1/2

2.	Replace Any Parts That Have Failed	WCC MAINTENANCE PROCEDURES   PAGE 2/2
3.	Inspect/Clean Injectors and Brine Line	
4.	Photograph System for Job Folder	
5.	Record Pentair Serial Number	
6.	Perform Any Work Covered by Warranty (If Applicable, s	ee notes)
7.	Include 12 postage-paid water sample bottles per year, hardness, iron, TDS, pH)	plus testing by WCC lab (if needed) (Results will include testing for
8.	Re-Examine Water Quality Levels (Hardness)	
Notes:		
Billing Inform	nation	
Name <sup>.</sup>		
Phone:		
Stroot		
City/Sta	ite/Zip:	
Purchas	e Order #:	
Acceptance	of Work:	
Tech. Sig	gnature:	
Client P	rinted:	
Client Si	ignature:	







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## SERVICE

You must keep salt in the tank. The salt tank operates best when the salt level is below half full. If the tank is filled more than halfway, salt bridging may occur. The salt pellets wedge against each other and do not fall into the water at the bottom. Bridging will eventually provide no salt to make brine. The softener will re-charge but not recondition the media. A salt bridge can be broken up using a broom handle or similar rod. Carefully pound it into the salt and the pellets will collapse. After loosening the salt pellets, wait 2 hours and start a regeneration. A second recharge may be needed to fully recondition the media. You should also use sodium chloride pellet salt for water softeners. Other types of salt (rock or snow melting) will contain dirt or chemicals that will affect your softener.

#### Checking for a Salt Bridge:

A hard crust or "salt bridge" can form in the lower half of the salt storage tank. This can be deceiving because the tank will appear to have plenty of salt, but underneath, salt is hardened and when the system regenerates, water cannot quite reach this level to be made into brine (water and salt).

#### Breaking a Salt Bridge:

Take a wooden broom handle and carefully push it down into the salt, working it up and down. If the tool strikes a hard object, (be sure it's not the bottom or sides of the tank), it's probably a salt bridge. Carefully break the bridge with the broom handle. Do not pound on the walls of the tank.

Note: Salt bridges are typically caused by high humidity or using the wrong kind of salt. And humid areas, it is best to fill the with less salt, more often. Use only nugget, pellet or coarse solar salt with a purity of 99.5% or higher. DO NOT use rock, block, granulated, and ice cream-making salts, or salt with iron removing additives.

#### Cleaning the Brine Injector Assembly:

It is recommended to clean the injector and injector screen annually to ensure proper system operation.

From time to time, a softeners brine water injection assembly can become clogged with dirt and debris. This resulted in for water softener regeneration, which, in-turn, can lead to poor softening performance. Plugging of a brine injector can also cause brine tanks to fill up with water, and eventually overflow.

Cleaning and unplugging a dirty brine injector is an easy process. For a detailed instructional video please visit https://watercontrolinc.com/residential-technical-videos/.

Water Control Corporation 7150 143rd Ave NW • Ramsey, MN 55303 1-866-405-1268 • www.watercontrolinc.con WC-OM-SERV © Water Control Corporatio



### Troubleshooting

1. Softener Fails To Regenerate.	A. Electrical service to unit has	A. Assure permanent electrical service
	been interrupted.	(check fuse, plug, pull chain or switch).
	B. Timer programming bad (improper programming).	B. Check programming and reset as needed.
2. Softener Delivers Hard Water.	A. By-pass valve is open.	A. Close by-pass valve.
	B. No salt in brine tank.	B. Add salt to brine tank and maintain salt level above water level.
	C. Injectors or screen plugged.	C. Clean or replace injectors and screen.
	D. Insufficient water flowing into brine tank.	D. Check brine tank fill time and clean brine line flow if plugged.
	E. Hot water tank hardness.	E. Repeated flushings of the hot water tank is required.
	F. Flow meter jammed.	F. Check flow indicator light for flow. Re- move obstruction from flow meter.
	G. Flow meter cable disconnected or not plugged into meter.	G. Check meter cable connection to timer and meter.
	H. Improper programming.	H. Reprogram the control to the proper re- generation type, inlet water hardness, capacity or flow meter size.
	I. Plugged brine line or air check.	I. Remove and clean any sediment from brine tank and brine valve assembly.
	J. Salt bridge has formed.	J. Refer to <i>Breaking a Salt Bridge</i> section in manual.
	K. No water in brine tank.	K. Ensure safety float is not stuck.
	L. Unit is plumbed backwards.	L. Check that the unit is plumbed correctly.
	M. Water hardness has increased or is set incorrectly.	M. Retest hardness and change settings.
	N. Water pressure is too low.	N. Line pressure must be at least 20 PSI.
3. Unit Uses Too Much Salt.	A. Improper salt setting.	A. Check salt usage and salt setting.
	B. Excessive water in brine tank.	B. See problem No. 7.
	C. Improper programming.	C. Check programming and reset as needed.
4. Loss of Water Pressure.	A. Iron buildup in line to water conditioner.	A. Clean line to water conditioner.
	B. Iron buildup in water condi- tioner.	B. Clean control and add resin cleaner to resin bed. Increase frequency of regener- ation.

### **Troubleshooting (continued)**

5. Loss of Resin Through Drain Line.	A. Air in water system.	A. Assure that well system has proper air eliminator control and check for dry well condition.
	B. Drain line flow control is too large.	B. Ensure drain line flow control is sized correctly.
6. Iron in Conditioned Water.	A. Fouled resin bed.	A. Check backwash, brine draw and brine tank fill. Increase frequency of regenera- tion. Increase backwash time.
	B. Iron content exceeds recom- mended parameters.	B. Add iron removal filter or system.
7. Excessive Water in Brine Tank.	A. Plugged drain line flow con- trol.	A. Clean flow control.
	B. Brine valve failure.	B. Clean brine valve.
	C. Improper programming.	C. Check programming and reset as needed.
8. Salt Water in Service Line.	A. Plugged injector system.	A. Clean injector and replace screen.
	B. Improper programming.	B. Check programming and reset as needed.
	C. Foreign material in brine	C. Clean or replace brine valve.
	D. Foreign material in brine line	D. Clean brine line flow control.
	E. Low water pressure.	E. Raise water pressure.
9. Softener Fails to Draw Brine.	A. Drain line flow control is plugged.	A. Clean drain line flow control.
	B. Injector is plugged.	B. Clean or replace injectors.
	C. Improper programming.	C. Check programming and reset as needed.
	D. Line pressure is too low.	D. Increase line pressure (line pressure must be at least 20 PSI at all times.)
10. Drain Flows Continuously.	A. Foreign material in control.	A. Remove piston assembly and inspect bore, remove foreign material & check control in various ports.
12. Loss of capacity.	A. Increased raw water hardness	A. Reset unit to the new capacity.
	B. Brine concentration and/or quantity.	B. Keep brine tank full of salt at all times. Clean it yearly. Salt may be bridged. If using a salt grid plate ensure refill water is over it.
	C. Resin fouling. Future fouling.	C. Call Water Control Corp, find out how to confirm it, clean the resin and prevent.
	D. Poor distribution, channeling (uneven bed surface).	D. Call Water Control Corp. Check distrib- utors and backwash flow.

TC control valves do not have meter	s so shaded ares are not applicable for	or TC control valves
Problem	Possible Cause	Solution
	a. Power Adapter unplugged	a. Connect power
	b. No electric power at outlet	b. Repair outlet or use working outlet
1. Timer does not display time of day.	c. Defective Power Adapter	c. Replace Power Adapter
	d. Defective PC board	d. Replace PC board
	a. Switched outlet	a. Use uninterrupted outlet
		b. Reset time of day. If battery
		is present the battery may be
2. Timer does not display correct time of day	b. Power outage	depleted. See Front Cover and
		Drive Assembly drawing for
		instructions.
	c. Defective PC board.	c. Replace PC board
	a Bypass valve in bypass position	a. Put bypass valve in service
		position
	b. Meter connection disconnected	b. Connect meter to PC board
3. Display does not indicate water is flowing. Refer to	c. Restricted/stalled meter turbine	c. Remove meter and check for
user instructions for how the display indicates water is		rotation or foreign material
flowing.	d. Defective meter	d. Replace meter
	e. Defective PC board	e. Replace PC board
	f. Meter not installed	t. Install meter
	g. PC board incorrectly programmed	g. Refer to programming instructions
		a. Reset time of day. If battery
	a Dower outogos	depleted See Front Cover and
	a. Fower outages	Drive Assembly drawing for
		instructions
	b. Time of day not set correctly	h Reset to correct time of day
4 Control valve regenerates at wrong time of day	c Time of regeneration incorrect	c Reset regeneration time
1. Control valve regenerates at wrong time of day		d Check control valve set-up
	d. Control valve set at "on 0"	procedure regeneration time
	(immediate regeneration)	option
	e. Control valve set at NORMAL	e. Check control valve set-up
	+ on 0 (delay $+$ immediate	procedure regeneration time
	regeneration)	option
	a. Motor not operating	a. Replace motor
	b. No electric power at outlet	b. Repair outlet or use working outlet
	c. Defective Power Adapter	c. Replace Power Adapter
5 Control value stalled in regeneration	d. Defective PC board	d. Replace PC board
5. Control valve staned in regeneration	e. Broken drive gear or drive cap	e. Replace drive gear or cap
	assembly	assembly
	f. Broken piston retainer	f. Replace drive cap assembly
	g. Broken main or regenerant piston	g. Replace main or regenerant piston
	a. Power Adapter unplugged	a. Connect Power Adapter
6. Control valve does not regenerate automatically when	b. No electric power at outlet	b. Repair outlet or use working outlet
the correct button(s) is depressed and held. For TC	c. Broken drive gear or drive cap	c. Replace drive gear or drive cap
valves the buttons are UP and DOWN. For all other	assembly	assembly
valves the button is REGEN.	d Defective DC heard	d Daulaas DC haard
	d. Defective PC board	d. Replace PC board
		a Dut hunges value in normal opera
	a. Bypass valve in bypass position	tion position
	h Meter connection disconnected h Connect mete	
7. Control valve does not regenerate automatically but		c Remove meter and check for rota-
does when the correct button(s) is depressed and held.	c. Restricted/stalled meter turbine	tion or foreign matter
For TC valves the buttons are UP and DOWN. For all	d. Defective meter	d. Repalce meter
other valves the button is REGEN.	e. Defective PC board	e. Replace PC board
		f. Check control valve set-up proce-
	I. Set-up error	dure
		a. Reset time of day. If battery is
		present the battery may be de-
8. Time of day flashes on and off	a. Power outage	pleted. See Front Cover and Drive
		Assembly drawing for instruc-
	tions.	tions.

#### Troubleshooting -

Problem	Possible Cause	Solution
	a. Control valve has just been ser-	a. Unplug power source jack from
	viced	the printed circuit board (black
		wire) and plug back in or press
		button sequence to reset valves:
		TC valves (three buttons) press and
		noid SET and DOWN buttons for 5
		other names like "SET HOUP."
		"CLOCK" or "SET CLOCK" but the
		circuit board is labeled with SET.)
		All other valves press and hold
		NEXT and REGEN buttons for 3
9. Error Codes		seconds.
101 1001 or E1 Unable to recog	b. Foreign matter is lodged in control	b. Check piston and spacer stack
nize start of regeneration	valve	assembly for foreign matter
inte start of regeneration	c. High drive forces on piston	c. Replace piston(s) and spacer
102, 1002 or E2 – Unexpected stall		stack assembly
*	a. Control valve piston not in home	a. Unplug power source jack from
103, 1003 or E3 – Motor ran to long,	position	wire) and plug back in or press
timed out trying to reach next		button sequence to reset valves:
cycle position		TC valves (three buttons) press and
104 1004 52 14 4		hold SET and DOWN buttons for 3
104, 1004 or E3 – Motor ran to long,		seconds. (Cover button may have
nome bosition		other names like "SET HOUR ",
position		"CLOCK" or "SET CLOCK" but the
If other error codes display contact		circuit board is labeled with SET.)
the factory		All other valves press and hold
		NEX I and REGEN buttons for 3
	e Motor not inserted fully to engage	e Check motor and wiring Replace
	pinion, motor wires broken or	motor if necessary
	disconnected, motor failure	
	f. Drive gear label dirty or damaged,	f. Replace or clean drive gear
	missing or broken gear	
	g. Drive bracket incorrectly aligned	g. Reseat drive bracket properly
	to back plate	h Deplace DC hostid
	n. PC board is damaged or defective	n. Keplace PC board
	drive bracket	snapped on to drive bracket
	a. Foreign matter is lodged in MAV/	a. Check MAV/NHWB piston and
10. Error Codes for MAV and	NHWB	spacer stack assembly for foreign
NHWB		matter
	b. High drive forces on MAV/	b. Replace MAV/NHWB piston and
106 or 1006 – MAV/NHWB unable	NHWB piston	spacer stack assembly
to find proper park position, mo-	c. MAV/NHWB motor not inserted	c. Check MAV/NHWB motor and
tor ran too long.	fully to engage pinion, motor	wiring. Check interconnect wir-
107 1007 MANANY	wires broken or disconnected, mo-	ing to both PC boards. Replace
10/ or 100/ – MAV/NHWB motor	tor failure	motor or wiring if necessary.
ran too snort (stalled) while	a. MAV/NHWB drive gear damaged,	a. Keplace MAV/NHWB drive cap.
looking to proper park position	e MAV/NHWB main gear cover	e Reseat MAV/NHWR main gear
If other error codes display contact	assembly incorrectly aligned to	cover assembly properly
the factory	drive assembly.	
	f. PC board is damaged or defective	f. Replace PC board



- · Solid state microprocessor with easy access front panel settings
- Service flow rate of 34 gpm, backwash 32 gpm
- Front panel display for time of day, days until next regeneration, volume remaining, current flow rate and total volume used (Totalizer)
- Four methods to initiate regeneration; meter immediate, meter delayed, time clock delayed or pressure differential
- Optional double backwash feature offers optimum regeneration, cleaning ability and efficiency
- Fully adjustable cycle times with 6-cycle control delivers controlled backwash, downflow brining slow rinse, second backwash, fast rinse, refill and downflow service
- Coin Cell Lithium battery back-up with an 8 hour carry over
- Backwash and brining ability to 21" diameter tanks
- Downflow or upflow brining regeneration
- Level VI 15-volt output DC power supply provides safe and easy installation
- Patented one piece expanding seal spacer stack assembly
- Patented linearly reciprocating piston operation
- · Control valve design provides optimum service and backwash rates
- Post treated water regenerant refill
- Reliable and proven DC drive

## Water Specialist 1.25" EE Control Specifications

Inlet/Outlet Fittings	
Cycles	up to 6
Valve Material	Fiber Beinforced Composite
Regeneration	Downflow
negeneration	
FLOW RATES	
Service @15 psi drop (includes bypass and meter)	
Backwash @ 25 psi drop (includes bypass)	
Cy Service	
Cv Backwash	
OPERATING PRESSURES	
Minimum/Maximum	20 psi – 125 psi
OPERATING TEMPERATURES	
Minimum/Maximum	40° – 110° F
METER	
	+ 5%
Accuracy	0.05 = 24  mm
Collen Denge	0.25 – 54 gpm
Gallon Range	
Iotalizer	1000 - 9,999,000 gallons
DIMENSIONS & WEIGHT	
Distributor Pilot	
Drain Line	<sup>3</sup> / <sub>4</sub> " or 1" Male NPT
Brine Line	<sup>3</sup> / <sub>4</sub> " or <sup>1</sup> / <sub>4</sub> " OD Poly Tube Compression
Mounting Base	2 1/2" - 8 NDSM
Height From Top Of Topk	7 3/s"
weight	4.5 lbs.
ELECTRICAL SPECIFICATIONS	POWER SUPPLY
	U.S. International
Supply Voltage	
Supply Frequency	50/60 Hz 50/60 Hz
Output Voltage	15VDC 15VDC
Output Voltage	500 mA 500 mA
	500 IIIA
TANK APPLICATIONS	
Water Softener	6" – 21" diameter
Water Filter (2)	6" – 24" diameter
CYCLES OF OPERATION	
	Softener Filter
Cycle	Range of time in minutes
1. Backwash 1 <sup>st</sup> (upflow)	1-95 Backwash 1-95
2. Regenerate Draw/Slow Rinse (downflow)	
3. Backwash 2 <sup>nd</sup> (upflow)	
4. Fast Rinse (downflow)	1-95
5. Regenerant Refill (in service with treated water)	
6 Service (downflow)	
Ontionas Daalassaah Filtan Dumaaa Waathan Oossan	

Options: Backwash Filter, Bypass, Weather Cover

Compatible with the following typical concentrations of regenerants or chemicals: Sodium chloride, potassium chloride, potassium permanganate, sodium bisulfite, chlorine and chloramines

1. Acquired by use of external drain line flow control

2. Filter tank size calculated @ 10 gpm of backwash per square foot of bed area

# 18 Inch Round Brine Tanks



18x40 Brine Tank with Blow Molded Cover



18x33 Brine Tank with Black Injection Molded Cover

ORDER NUMBER	DESCRIPTION
G21826BB1C00	18x36 Blue Brine Tank with Blow Molded Cover
G21833[*]B1C00	18x33 Brine Tank with Blow Molded Cover
G21833[*]G7CWG	18x33 Brine Tank with Black Injection Molded Cover
G21840[*]B1C00	18x40 Brine Tank with Blow Molded Cover
G21840[*]G7CWG	18x40 Brine Tank with Black Injection Molded Cover

[\*] Color code digit: A - Almond, B - Blue, C - Black, W - White

Clack's 18 inch blow molded round brine tanks offer a refreshing look in the residential and light commercial brine tank field. Durable materials and the latest in plastic processing technology provide trouble-free performance. Ultraviolet inhibitors (UVI) are now standard in all tanks except black, which has a natural resistance to the sun's rays. Three different sizes are available for up to 450 lbs. of salt capacity.

#### **Advantages:**

- Attractive design to meet customer appeals with four modern stock colors to choose from — almond, blue, black and white. (Custom colors available.)
- Blow molded from high-density polyethylene to give exceptional environmental stress-crack properties providing years of trouble-free service.
- These tanks can be top loaded on other Clack water treatment components and drinking water systems to substantially reduce total shipping costs.
- All round brine tanks are individually shipped in a durable 150# test reshipper carton.
- Optional injection molded grid promotes uniform brining and reduced salt bridging.

TANK SIZE LIQUID CAPACITY		SALT CAPACITY DIAMETER		HEIGHT W/ LID		SHIPPING WEIGHT		MASTER CARTON			
in.	gal.	liters	lbs.	Kg	in.	cm	in.	cm	lbs.	Kg	ft. <sup>3</sup> /units per
18 x 26	27	102	275	125	181/2	47	25	64	12	5.5	5.5/1
18 x 33	36	136	375	170	18½	47	33¼	84	12	5.5	7/1
18 x 40	43	163	450	205	18½	47	40¾	104	15	6.8	9/1



#### **Clack Corporation** 4462 DURAFORM LANE • WINDSOR, WISCONSIN 53598-9716 USA **PHONE (608) 846-3010** FAX (608) 846-2586 SALES/CUSTOMER SERVICE FAX (800) 755-3010

## Commercial/Industrial Rotationally Molded Brine Tanks



Commercial and industrial water softeners require a large volume of brine during each regeneration.

From a capacity of 95 gallons to 500 gallons, our Rotationally Molded Brine Tanks are built to last.

Molded out of durable, chemically resistant high density polyethylene, their  $\frac{1}{4}$ " seamless walls won't bulge.

Rotationally Molded Brine Tanks are strong enough to handle your toughest brine requirements. (All tanks and covers are black.)

#### **Also Available:**

24" Plastic Grids30" Plastic Grids

TANK SIZE	ORDER NUMBER	DIAMETER	HEIGHT	SALT CAPACITY	VOLUME	WEIGHT
24 x 48	G22448CB1P00	24"	48"	800 lbs.	95 gal.	30 lbs.
24 x 60	G22460CB1P00	24"	60"	1000 lbs.	115 gal.	32 lbs.
30 x 48	G23048CB1P00	30"	48"	1200 lbs.	145 gal.	48 lbs.
30 x 60	G23060CB1P00	30"	60"	1600 lbs.	180 gal.	56 lbs.
39 x 48	G23948CB1P00	39"	48"	2200 lbs.	250 gal.	67 lbs.
39 x 60	G23960CB1P00	39"	60"	2700 lbs.	300 gal.	80 lbs.
42 x 60	G24260CB1P00	42"	60"	3100 lbs.	350 gal.	84 lbs.
50 x 60	G25060CB1P00	50"	60"	4500 lbs.	500 gal.	107 lbs.



	<b>Official Warranty</b>
	Water Control Corporation
	Commercial Water Softeners
	Limited Wernerstry
	Limited warranty
Water Contro al tank(s) to b Epoxy-lined months from clude any cosports will be	I Corporation warrants the water softener control valve, plastic brine tank(s), and fiberglass-reinforced miner be free of manufacturers defects for the lesser of 18 months from shipment or 12 months from system startup, steel mineral tank(s) shall be free from manufacturers defects for the lesser of 30 months from shipment or 2 <sup>4</sup> system startup. We will, at our discretion, repair or replace defective products. This warranty does not in- sts associated with removal of defective products, or installation of replacement products. All replacement provided FOB Ramsey, MN. This warranty is transferable.
DISCLAIME	R OF IMPLIED WARRANTIES
Water Contro he laws of th LIEU OF, A WARRANT FITNESS FO	I Corporation makes no warranties except those expressly stated in this document. To the extent permitted by ie applicable state, ALL WARRANTIES CONTAINED IN THIS DOCUMENT ARE EXPRESSLY IN ND WATER CONTROL CORP ORATION EXPRESSLY DISCLAIMS, ANY AND ALL OTHER IES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND OR A PARTICULAR PURPOSE.
WHAT IS N	OT COVERED BY THESE WARRANTIES
. Conditi	ons and damages resulting from any of the following:
	<ul> <li>Wear caused by unfavorable water conditions</li> <li>Improper installation, delivery, or maintenance</li> <li>Failure to provide system with adequate salt</li> <li>Any repair, modification, alteration, or adjustment not authorized by the manufacturer or an authorized servicer</li> <li>Misuse, abuse, accidents, or unreasonable use</li> <li>Improper setting of any control</li> <li>Incorrect electric current, voltage, or supply</li> </ul>
2. Warranties	are void if the original serial numbers have been removed, altered, or cannot be readily determined
3. The cost o	f service or service call to:
	<ul> <li>Correct installation errors</li> <li>Instruct the user on proper use of the product</li> <li>Transport the product to the servicer</li> </ul>
4. Any costs	associated with removal of defective products, or installation of replacement products.
5. Consequer warranties. above exclu	tial, special, or incidental damages sustained by any person as a result of the breach of these Some states do not allow the exclusion or limitation of consequential or incidental damages, so the ision may not apply to you.