

# Residential Softener

RL-R50

RL-R60

RL-R80

RL-R100

RL-R110

RL-R120

RL-R150

## User Manual

Please read this manual in details  
before using the device and keep it properly  
in order to consult in the future

0WRX.466.584

## Catalogue

Preface.....	2
1. Product Profile.....	2
2. Working Principle.....	2
3. Assembly & Parts.....	3
4. Function and Characteristics.....	4
5. Application.....	5
6. Technical Parameters.....	5
7. Setting and Usage.....	6
7.1 Control Valve Setting and Usage.....	6
※The Function of Control Panel and Parameter Setting.....	6
※Parameter Setting .....	7
※User Mode.....	8
7.2.The Installation and Usage of Brine Valve.....	9
7.3. The Installation and Usage of Bypass Valve (Optional).....	9
7.4. The Operations of the Valve with The Function of Mixing Water (Only for F79 & F82 valve).....	9
8. Usage Illustration.....	10
9. Notice.....	11
10. Warranty Guidance.....	14

※Note: The design and specifications are subject to the changes without prior notice. We reserve the right of interpretation to the user manual.

## Preface

Thanks for choosing our softener series products. These products are featured by good softening effects, stable performance, excellent appearance, compact structure and simple handling, etc. They can meet the soften water demand of family washing, bathing, cleaning and boiling, etc. Besides, they also can be applied to supplying high quality soften water for institutions, schools, group companies, and so on.

## 1. Product Profile

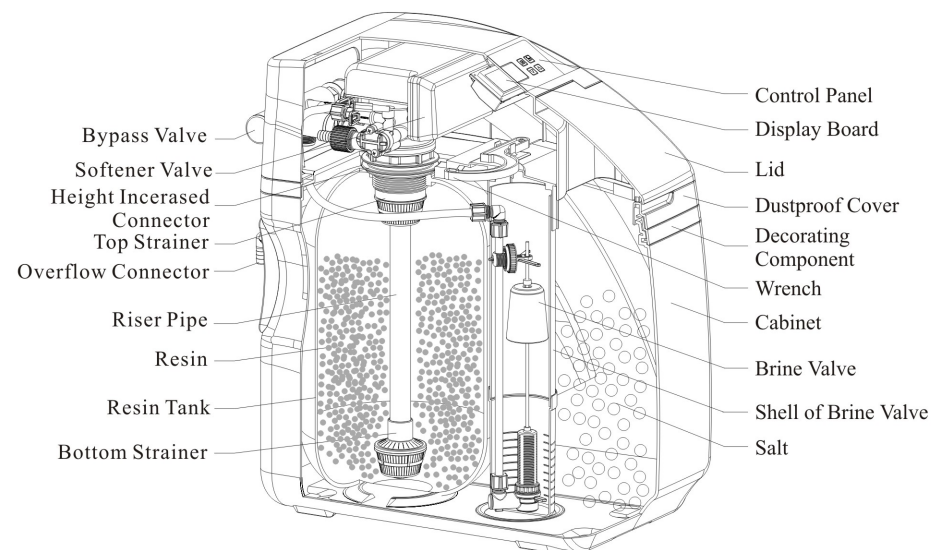
The product is working automatically and intelligently. It adopts food-grade cation resin to soften water with characteristics of big flow rate and good softening effect, efficiently reducing calcium and magnesium ion content of tap water. After the resin is saturated, the regeneration function will automatically control the product to brine and conduct regeneration, recovering the softening function of the resin. It can automatically realize the function of backwash, regeneration, brine refill and fast rinse without manual operations.

## 2. Working Principle

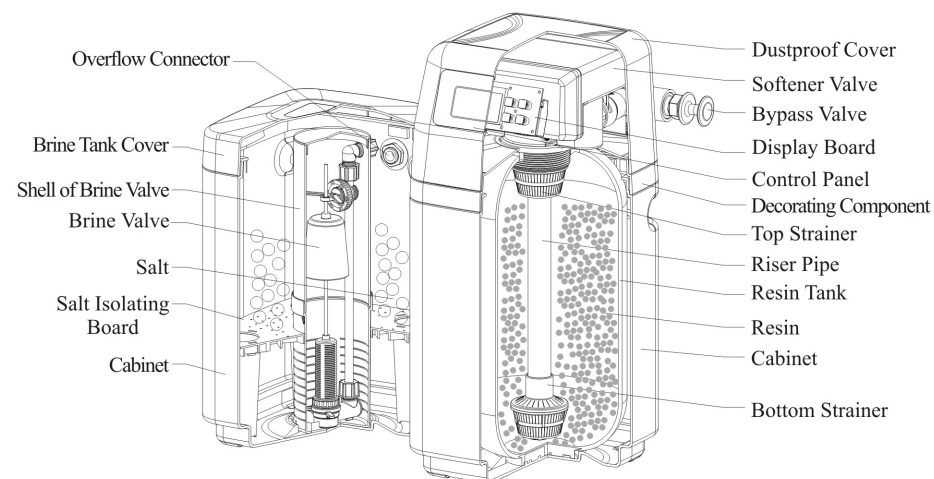
Ion exchange technique is applied to the softener. It can realize the purpose of wiping off the lime scale (Calcium carbonate and magnesium carbonate) through replacing the calcium ion and magnesium ion by the sodium ion of the resin. According to the pre-set program, it can automatically control the open and close of each valve, so as to conducting softening, backwash, regeneration, slow rinse, brine refill and fast rinse.

## 3. Assembly & Parts

### Integrated type structure (For example B type)



### Split type structure (For example D type)



## 4. Function and Characteristics

### 1. Regeneration starts automatically:

According to the regeneration time and water treatment capacity of one cycle, the system will start the regeneration program.

### 2. Hardness of raw water can be set:

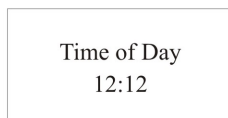
After inputting the hardness value, the control valve will automatically calculate the system water treatment capacity and display on the LCD screen.

### 3. Water hardness can be adjusted:



It can adjust the hardness of outlet water by adjusting the bypass.

### 4. Automatic memory function:



The parameters set by users, such as regeneration time, backwash time, brine & slow rinse time, brine refill time, fast rinse time and so on, can be saved permanently no matter how long the power is off. If power off is more than 3 days, it will always display this interface to remind to reset the time of day (See below picture)



### 5. Language:

Chinese or English can be chosen. **After power connected within 6 seconds, press and hold both “” and “” for 5 seconds under the service status, the system will turn into language selection interface.**

### 6. Buttons lock function:

No operations to buttons within 1 minute, buttons are locked. **Press and hold the “” and “” buttons for 5 seconds to unlock. This function can avoid incorrect operation.**

### 7. Regeneration mode is meter delayed type:

Regenerate on the day although the available volume of treated water drops to zero (0). Regeneration starts at the regeneration time. It can avoid the shortage of water for regeneration.

### 8. Working automatically:

**Softening:** Under a certain pressure and flow rate, the raw water flow through the product, at the same time, the calcium ion and magnesium ion of raw water are replaced by the sodium ion of resin, reducing the content of calcium ion and magnesium ion and realizing the purpose of softening water.

**Backwash:** After the resin is saturated and lose softening efficacy, the program start backwashing before regeneration. On one hand, it can wipe off the broken resin and the impurity

on surface layer of resin. On the other hand, the reversed flow direction can loosen the tight resin and make it benefit for the touch between resin particle and regeneration liquid.

**Brine and slow rinse:** A certain concentration brine flow through the resin. Meanwhile, the calcium ion and magnesium on the resin surface layer are replaced by the sodium ion, making the invalid resin regeneration and recovering its softening capacity.

**Brine refill:** The brine tank is refilled with water to dissolve the salt so as to provide the saturated brine for next regeneration.

**Fast rinse:** Discharge the residual brine and compact the resin particle so as to reach the best softening effect. By this step, the product automatically finished one service cycle.

## 5. Application

The product can be used for treating the tap water or other qualified raw water.

## 6. Technical Parameters

Product Parameters:

Model	Rated Flow Rate (L/h)	Suggested Flow Rate (L/h)	Water Capacity Per Cycle (L)	Rated Treated Water Quantity (m <sup>3</sup> )	FRP Tank Dimension (Φ×h) mm	Cation Resin Volume (L)	Brine Tank Size (in)	Drain
RL-R50	500	300~500	1200	320	180×331	4.5	0713	1/2
		500~800			180×432	6	0717	
		500~800			205×381	7	0815	
RL-R60	600	500~1000	1800	500	205×432	8	0817	
RL-R80	800	800~1000	2500	750	232×432	11	0917	
RL-R100	1000	800~1200	3000	1050	258×432	12.5	1017	1/2
RL-R110	800	800~1500	4000	1500	205×891	18	0835	
RL-R120	900	900~1500	5500	1800	232×891	23	0935	1/2
					258×606	19	1024	
RL-R150	1000	1000~2500	7000	2250	258×891	28	1035	1/2
		1000~3200			258×1121	36	1044	

※ Water treatment capacity per cycle is various according to the difference water quality of different region. The standard testing conditions is: Water temperature: 25°C, Raw water hardness: 150mg/L(CaCO<sub>3</sub>).

※ The outlet water conforms with the regulations (2001) of Safety and Function Assessment for Drinking Water Treatment Device— General Treatment Device.

※ Transformer— Input : AC100~240V / 50Hz~60Hz; Output: DC12V / 1.5A

Service Conditions:

Water Pressure: 0.15-0.4MPa;

Electrical Facility: AC100~240V / 50Hz~60Hz;

Water Temperature: 5~38°C

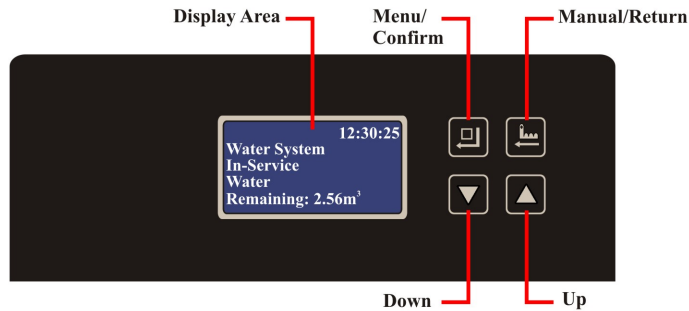
Environment Temperature: 4~40°C

Relative Humidity: 90% (25°C)

## 7. Setting and Usage

### 7.1. Control Valve Setting and Usage

#### ※The Function of Control Panel and Parameter Setting



A. Button lock indicator

Light on, indicating the buttons are locked. At this moment, press any single button will not work (No operation in one minute, will light on and lock the buttons.)

Solution : Press and hold both “” and “” for 5 seconds until the light off.

B. “” Menu/Confirm button

● Press “” under the service status, the system turns into setting interface. Select the item and inquire the value.

● Under inquiry status, press “” and the digits flash. It turn into setting interface, and you can adjust the parameters by press “” and “” .

● After the setting, press “” and turn into setting interface by saving the settings with a “Di” sound.

C. “” Manual/Return button

● Press “” under the service status, the system will turn into next status immediately. (For example: If the quality of outlet water fails, after unlocking the buttons, press “” in service status, it will start regeneration cycles instantly; During the cycle of regeneration, if you want to finish current steps in advance, press “” and it will turn into next step at once.)

● Press “” under the inquiry status, the system will turn back to service status interface; Press “” under the setting status, the system will turn back to inquiry status.

● Under the setting status, press “” and the system will turn back to inquiry status without saving the setting value.

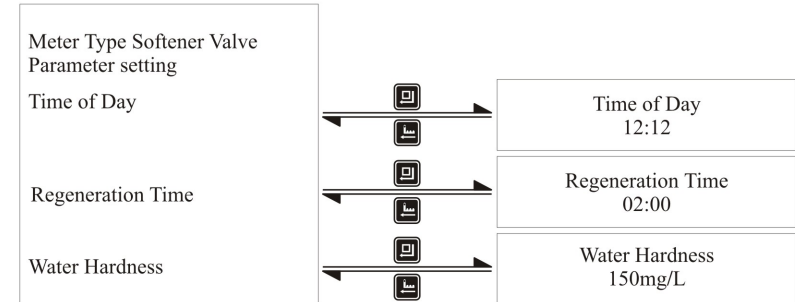
D. Down “” and Up “”

● Under the inquiry status, press “” or “” to view all values.

● Under the setting status, press “” or “” to adjust values.



● Press and hold both “” and “” for 5 seconds to lift the button lock status.

#### ※Parameter Setting



Item	Parameter Set Arrange	Factory Default	Actual Value
Time of Day	00:00 ~ 23:59	Current time	
Regeneration Time	00:00~23:59	02:00	
Water Hardness	50~999mg/L	150mg/L	

Items	Process steps	Symbol
Time of Day	When  light on, press and hold “” and “” for 5 seconds until the  light off. 1. Press “” and enter into the interface of “Set Softener Para. ”, as the figure LR1 shows. The item of “Set Time of Day” will be selected by system automatically. 2. Then press the “”, and the setting interface will display as the figure LR2; the hour value “12” flash, through “” or “” to adjust the hour value. 3. Then press “” again, the minute value “30” flash, through “” or “” to adjust the minute value. 4. Lastly, press “” and hear a sound “Di”, then finish adjustment	Set Softener Para. » Set Time of Day Set Regen. Time Set Water Hardness LR1
		Set Time of Day 12 : 30 LR2

Regeneration Time	<p>1.Press “ <div data-bbox="765 159 980 311"> <p>Set Softener Para. Set Time of Day » Set Regen. Time Set Water Hardness</p> </div> <div data-bbox="765 311 980 343"> <p>LR1</p> </div> <div data-bbox="765 343 980 430"> <p>Set Regen. Time 02 : 00</p> </div> <div data-bbox="765 430 980 462"> <p>LR3</p> </div> </p>
Water Hardness	<p>1.Press “ <div data-bbox="765 510 980 662"> <p>Set Softener Para. Set Time of Day Set Regen. Time » Set Water Hardness</p> </div> <div data-bbox="765 662 980 694"> <p>LR1</p> </div> <div data-bbox="765 694 980 782"> <p>Set Water Hardness 150mg/L</p> </div> <div data-bbox="765 782 980 813"> <p>LR4</p> </div> </p>

**Illustration: After setting the water hardness, the display screen will show the total water treatment capacity or remaining water. If you think the water treatment capacity is too low to meet your demand, you can adjust the capacity by setting the water hardness. Under the condition of not affecting the outlet water quality, lowering the water hardness value can increase the water treatment capacity.**

**※User Mode**

After power on, L1 interface will show 3 seconds and then enter into user mode.



Process display example: The meter type softener valve

<p>12:30:25 Water System In-Service Water Remaining: 2.56m<sup>3</sup> Cur. F.R.: 0.85m<sup>3</sup>/h</p>	<p>12:30:35 Water System In-Service Water Regen. Time: 02:00</p>	<p>02:08:00 Water System Back Washing... Water Remaining: 3 min.</p>	<p>02:40:25 Water System Brine &amp; Slow Rinse... Up-flow Remaining: 30 min.</p>
Service Status 1	Service Status 2	Backwash Status	Brine & Slow Rinse Status

<p>03:15:50 Water System Brine Refilling... Remaining: 05:30 min.:s.</p>	<p>03:25:50 Water System Fast Rinsing... Remaining: 5 min.</p>	<p>Motor Running...</p>
Brine Refill Status	Fast Rinse Status	Motor Running

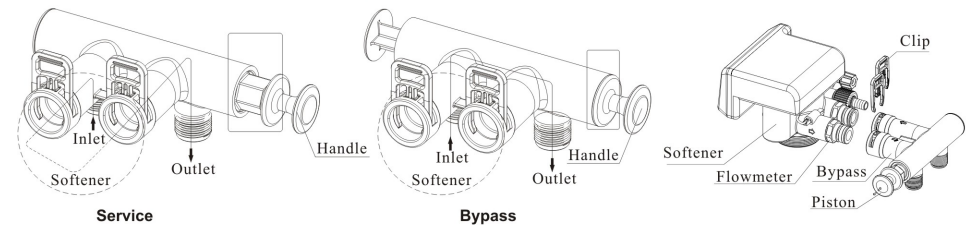
●The working process is Service→ Backwash→ Brine& Slow Rinse→ Brine Refill →Fast Rinse→ Service (Cycle repeats).

**7.2. The Installation and Usage of Brine Valve**

The brine valve plays two roles in the whole system: First, under the brine and slow rinse status, with the floating ball, the brine valve can prevent the air from being inhaled which may affected the regeneration and usability. That is, the brine valve has the function of air check. Second, under the brine refill status, the brine valve can control the volume of refilling water by controlling the position of floater.

**7.3. The Installation and Usage of Bypass Valve (Optional)(Take F70C&F70D as example, if you use the other model of bypass valve, please refer to the appendix manual.)**

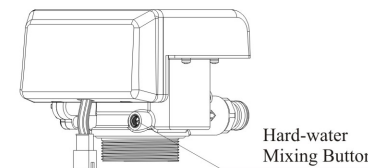
The valve has the function of bypassing. When the piston is pushed to the position of inlet and outlet, the valve is in service status; When it is at bypass position, the valve is in bypass status. It adopts quick joint structure to connect the valve with bypass valve, with the characteristics of reliable sealing, quick and convenient installation.(Refer to the below pictures)



**7.4. The Operations of the Valve with The Function of Mixing Water (Only for F79 & F82 valve)**

If the users think the hardness of outlet water is too low, they can adjust the hardness by using the function of mixing water according to the actual demand.

Operation: Anticlockwise rotates the adjusting bolt (As the picture shows). The wider angle is, the higher outlet water hardness will be.




## 8. Usage Illustration

After installing the device and setting the relevant parameters, please conduct the trial running as follows:


※Fill the brine tank with the planned regeneration salt and the water (Refer to the below table), making the brine is saturated (26%). Then start the device (This step is necessary only for the situation that the device is put into use for the first time.)

Resin Tank	0713	0717	0815	0817	0917	1017	0835	0935	1024	1035	1044
Water (L)	3	4	4.5	5	6	7	9	10	9	13.5	15

※Switch on power. Press “” and go in the Backwash status. Slowly open the inlet valve to 1/4 position (Avoiding to open the valve too quickly to damage the device and make the resin run off). At this moment, you can hear the sound of air-out from the drain pipeline. After all air is out of pipeline, then open inlet valve completely and conducting 2~3 minutes backwash, cleaning the foreign materials in the resin tank until the outlet water is clean.


02:08:00  
Water System  
Back Washing...  
Remaining: 3 min.

### Backwash Status

※Press “” turn the status from Backwash to Brine & Slow Rinse. Under this status, the brine will be absorbed from the brine tank into the resin and the resin is regenerated. After absorbing, the brine valve will close. The system will still conduct about 15 minute’s slow rinse, wiping off the residual brine. The whole process will take about 40 minutes to finish.


02:40:25  
Water System  
Brine & Slow Rinse...  
Up-flow  
Remaining: 30 min.

### Brine & Slow Rinse Status

※Press “” and turn into Brine Refill status. The brine tank will be refilled with water to dissolve the salt. When the level controller reaches the required height, the refilling will be stopped. The new saturated brine will be used for next regeneration.


03:15:50  
Water System  
Brine Refilling...  
Remaining: 05:30 min.:s.

### Brine Refill Status

※Press “” and turn into Fast Rinse status, starting to Fast Rinse. About 3 minutes fast rinse will discharge the residual brine and compact the resin particle so as to reach the best softening effect.


03:25:50  
Water System  
Fast Rinsing...  
Remaining: 5 min.

### Fast Rinse Status

※When the sample outlet water is qualified, press “” and finish the Fast Rinse. Then the device turns into Service status and start running.

12:30:25  
Water System  
In-Service  
Water  
Remaining: 2.56m<sup>3</sup>  
Cur. F.R.: 0.85m<sup>3</sup>/h

### Service Status

**Illustration:** Under regeneration cycle, the softener water will stop flowing out from the outlet and each status will be completed automatically according to the setting time. If you want to finish one step in advance, you can press “”.

※During the trial running status, check each port. There should no mineral media flow out.

**Check each connection, ensure there is no leakage.**

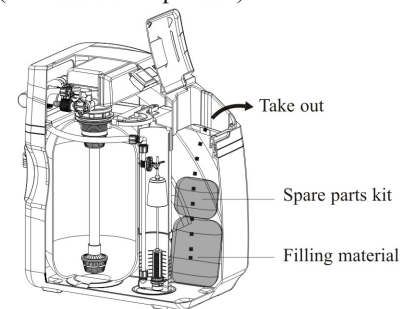
※The time of backwash, brine & slow rinse, brine refill, fast rinse, etc. could be suggested by dealer or professional personnel.

**Notice: Under normal situation, user does not need to do any operation except adding a certain amount of salt into the brine tank.**

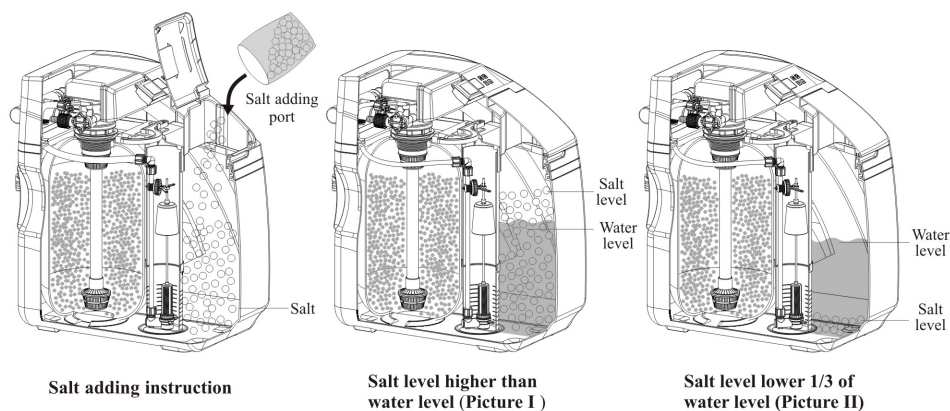
## 9. Notice

Before reading and understanding the user manual, please do not operate the device.

※Before installation and rial test the product, please take out the spare parts kit and filling material from the cabinet(See the below picture).

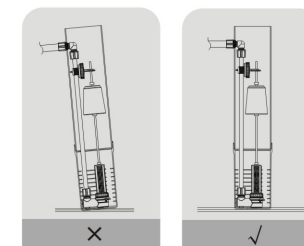


- ※To ensure normal operation of the product after installed, please consult with professional installation or repairing personnel before use it.
- ※Forbid installing the device near heat source or take anti-heat protective measures when install near the heat source. It is also forbidden to connect the device with the hot-water pipeline or the pipeline with the possibility of hot-water returning. Forbid the product under the temperature lower than 1 °C. Protect resin from freezing which may result in resin broken and disabled.
- ※If the raw water fails to meet the standards of local tap water, such as the sediment concentration or residual chlorine content exceed the stand, etc., the pretreatment device should be installed before the device.( Such as Y type filter, ultra filter, and so on.)
- ※During the operation, please check the brine tank regularly to ensure there is brine in the tank. And when adding brine, please make sure that salt level is higher than water level (see picture I). When the salt level is lower 1/3 of water level (see picture II), please add in time. (Attention: Make sure the dissolving salt time is more than 6 hours so as to make the brine saturate)



- ※Please strictly use the salt of more than 99% purity only. Any salt with additive or large particles is forbidden to add.
- ※Please use this product under the water temperature between 5~45 °C, water pressure 0.15~0.6MPa. Failure to use this product under such conditions voids the warranty.
- ※Sodium used in the water softening process should be considered as part of your overall dietary salt intake. Contact doctor if you are on a low sodium diet.
- ※Without being used for a long time or the pressure of the inlet water is instable, please close the inlet port and turn off the power. Before using again, please firstly conduct a regeneration cycle through manual operation so as to ensure the quality of soften water.

- ※During the service of product, prevent water hammer happened. Do not make these operations, such as quickly and fully opening valve, or quickly and fully closing valve or shut off water pump, etc.
- ※If the water demand is increasing (Compared to usual demand) or the hardness of raw water is rising, please reduce the regeneration cycle and increase the regeneration times, ensuring the soften water yield.
- ※When use the softener for the first time or the device is idle for long period, it is normal that the outlet water is yellow. Please put into use after 2~3 minutes' rinsing.
- ※Sometimes the brine in the brine tank will forms salt bridge. That is, there is a space under the brine which prevents the salt from being dissolved and hinders the resin regeneration. It is suggested to check regularly. If there is salt bridge, please mash it.
- ※During regeneration period, there is no softened water for using. But if it still need water for using, it is not suggested to bypass big quantity of hard water, it may affect the regeneration efficiency.
- ※If the display board display 12:12 and flashing, it means power off (more than 3 days) to remind to reset the time of day. If power off within a short time, the system has memory function, do not need to reset the time.
- ※For safety usage, the overflow connector should be installed in the product.
- ※Check the softener regularly, checking item:
  - a) If there is any pipeline leakage. If it does, contact with your seller.
  - b) If the overflow connector blocked, if it does, clean it.
  - c) If the brine well in vertical. If it doesn't, put it in vertical (See picture at below)



- ※As the product is constantly updating, the possibility that the manual instruction can't accord with the product may happen. So, it is subjected to the actual product.
- Special notice: The water pressure of tap water is changeable (Normally the pressure in night time is higher than day time.), so pay attention to each connection to check if there is any leakage at the first two days after products installed.**



## 10. Warranty Guidance

Dear Customers:

Thanks for use our softener. For the protection of your rights, please read the manual and warranty guidance in details before using our products, so that we can service you better.

- ※“Three Guarantees” period is one year since the purchase date (Refer to the date of guarantee card or other provable documents)
- ※During the guarantee period, maintenance is free if the damage is caused by the product quality problems. However, if the damage is caused by user, we will charge you a certain fee.
- ※When guarantee period is expired, we will still provide after-sales service, such as maintenance, changing resin, supplying parts, etc. The fee of materials and service will be charged according to our latest charging standards.
- ※It couldn't be repaired free of charge under the below conditions:
  - ①Resin, seal, decoration shell, the coating of appearance, etc.
  - ②The damage is caused by force majeure, such as fire, flood, electric shock, earthquake, etc.
  - ③The damage is result from the disassembly or refits by user or repair by non-scheduled maintenance unit.
  - ④The damage is caused by the improperly transportation, installation, usage and maintenance.
  - ⑤Content in guarantee proof is unconfirmed with the label on the real good or be altered.
  - ⑥User can't provide the guarantee card or other proofs.
- ※The product dealers are responsible for the maintenance and other after-sales service.  
(The guarantee card or other proof is effective with the dealers' stamp or our company's stamp)
- ※Please keep the guarantee card properly and provide it when maintenance.