润新®
RUNXIN

Multi-functional Flow Control Valve for Water Treatment Systems

93540B (F112C1)
93640B (F112C3)
91240B (F112CS)

User Manual

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

OWRX.466.630

Before the valve put into use, please fill in the below content so as to help us to refer in the future.

As for 91240B, it has no electrical part accordingly.

The Program Type Setting (Operation by professional)

When all symbols light on, press and hold " " and " " buttons for 5 seconds to enter the menu of valve model selection. **Please set the program type in accordance with the product type.**

Softener System Configuration

Tank Size: Dia. _____mm，Height_____mm；

Resin Volume _____L；Brine Tank Capacity_____L；

Hardness of Raw Water_____mmol/L；

Pressure of Inlet Water_____MPa；

Control Valve Model_____；Number_____；

The Specification of Drain Line Flow Control_____；

Injector No._____.

Water Source: Ground-water☐ Filtered Ground-water ☐Tap Water☐ Other_____.

Parameter Set

Parameter	Unit	Factory Default	Actual Value
Time of Day	h.:m.	Random	
Control Mode A-01/02 (Meter Type)	/	A-01	
Water Treatment Capacity (Meter Type)	m^3	400.00	
Service Days (Time clock type, by days)	D.	03	
Regeneration Time	/	02:00	
Settling Bed Time	min.:sec.	10:00	
Brine Drawing Time	min.:sec.	60:00	
Soak Time	min.:sec.	01:00	
Slow Rinse Time	min.:sec.	45:00	
Fast Rinse Time	min.:sec.	10:00	
Brine Refill Time	min.:sec.	05:00	
Interval Regeneration Days (Meter Type)	D.	30	
K Value （Only for Meter Type）	/	4.194	

●If there is no special requirement when product purchase, we choose 2# drain line flow control (With two pieces of ϕ7 holes) and 2# injector (7802) for the standard configuration .

Catalogue

Notice

● To ensure normal operation of the valve, please consult with professional installation or repairing personnel before use it.

● If there are any of pipeline engineering and electric works, there must be finished by professional at the time of installation.

● Do not use the control valve with the water that is unsafe or unknown quality.

● Depending on the changing of working environment and water requirement, each parameter of softener should be adjusted accordingly.

● When the water treatment capacity is too low, please check the resin. If the reason is shortage of resin, please add; if the resin is turn to reddish brown or broken, please replace.

● Test water periodically to verify that system is performing satisfactorily.

● Ensure that there is solid salt all the time in the brine tank in the course of using, when this valve is used for softening. The brine tank should be added the clean water softening salts only, at least 99.5% pure, forbidding use the small salt.

● Do not put the valve near the hot resource, high humidity, corrosive, intense magnetic field or intense librations environment. And do not leave it outside.

● Forbidden to carry the injector body. Avoid using injector body as support to carry the system.

● Forbidden to use the brine tube or other connectors as support to carry the system.

● Please use this product under the water temperature between 5～50℃, water pressure 0.2～0.6MPa. Failure to use this product under such conditions voids the warranty.

● If the water pressure exceeds 0.6Mpa, a pressure reducing valve must be installed before the water inlet. While, if the water pressure under 0.2MPa, a diaphragm pump must be installed before the water inlet.

● It is suggested to install PPR pipe, corrugated pipe or UPVC pipe, instead of TTLSG pipe. Pipe installation should be straight.

● Do not let children touch or play, because carelessness operating may cause the procedure changed.

● When the attached cables of this product and transformer are changed, they must be changed to the one that is from our factory.

1. Product Overview

1.1.Main Application & Applicability

Used for softening, filtering or demineralization water treatment systems

Suit for the ion exchange equipment which treat the raw water hardness ≤15mmol/L

Boiler softening water system

RO pretreatment softening system,etc.

1.2.Product Characteristics

●Simple structure and reliable sealing

The distribution valve adopts hermetic head faces with high degree pottery and corrosion resistance for opening and closing. It combines with Service, Settling Bed, Brine Draw, Soaking, Slow Rinse, Fast Rinse and Brine Refill.

●No water passes the valve during regeneration in single tank type.

●Manual Function

Realize regeneration immediately by pushing " " at any time.

●Long outage indicator

If outage overrides 3 days, the time of day indicator "12:12" will flash to remind people to reset new time of day. The other set parameters do not need to reset. The process will continue to work after power on.

●LED dynamic screen display

The stripe on dynamic screen flash, it indicates the control valve is in service; otherwise, it is in regeneration cycle.

●Button lock

No operations to buttons on the controller within 1 minute, button lock indicator light on which represent buttons are locked. Before operation press and hold the " " and " " buttons for 5 seconds to unlock. This function can avoid incorrect operation

●It can choose valve model through buttons.

When all symbols light on, press and hold " " and " " buttons for 2 seconds to enter the menu of valve model selection. Press " " or " " button to select the right type,and press " " to save the setting. Reconnect the power again, the display screen will show the product model that you set.

●Interlock function

It has a function of interlock to realize only one valve in regeneration but the other valves

are in service while several valves parallel in system. In multi-steps treatment systems such as RO pre-treatment, when several valves are in series, there is only one valve in regeneration or washing to ensure pass water all the times while different valves in regeneration or washing. (Application refer to Figure 3-9)

●Remote handling input

This connector can receive external signal, used together with PLC, and computer etc. to control the valve. (Application refer to Figure3-2)

●Inlet water pump connector

When the pressure of the inlet is too low, you can install inlet water pump through this connector to increase the inlet pressure. Connect the inlet of water pump with the water pipeline, connect outlet of the water pump with the inlet of the valve, so as to increase the working pressure. (Please refer the Figure 3-3/5 connect way)

●Regeneration pump connector

Control the regeneration pump through this connector. Connected the inlet of the regeneration pump with soft water tank, the outlet of the regeneration pump with the inlet of electronic ball valve, connected the outlet of the electronic ball valve with the inlet of injector. When brine & slow rinse, regeneration pump opens, using softened water to regenerate. (Please refer the Figure 3-4/6 wiring connection). It is better to choose regeneration pump which flow rate is 3t/h, and the pump head is 20m.

●All parameters can be modified

According to the water quality and usage, the parameters in the process can be adjusted.

●Two meter types for optional (Suit for 93640B)

Model	Name	Instruction
A–01	Meter Delayed	Regenerate on the day although the available volume of treated water drops to zero (0). Regeneration starts at the regeneration time.
A–02	Meter Immediate	Regenerate immediately when the available volume of treated water drops to zero(0).

●Maximum interval regeneration days (Suit for 93640B)

Under the situation of service reaching the setting days and the volume not yet, it could enter into regeneration process forcibly when current time is the same as regeneration time.

1.3.Service Condition

This valve should be used under the below condition

Items		Requirement
Working conditions	Water pressure	0.2MPa ~ 0.6MPa
	Water temperature	5℃ ~ 50℃
Working environment	Environment temperature	5℃ ~ 50℃
	Relative humidity	≤95% (25℃)
	Electrical facility	AC100 ~ 240V/50 ~ 60Hz
Inlet water quality	Water turbidity	< 2FTU
	Water hardness	First Grade Sodium＜6.5mmol/L; Second Grade Sodium＜10mmol/L
	Free chlorine	< 0.1mg/L
	$Iron^{2+}$	< 0.3mg/L
	(CODMn) CODMn	< 2mg/L (O_2)

In the chart, first grade sodium refers to first grade sodium exchanger, second grade sodium refers to second grade sodium exchanger.

●When the water turbidity exceeds the conditions, a filter should be installed on the inlet of control valve.

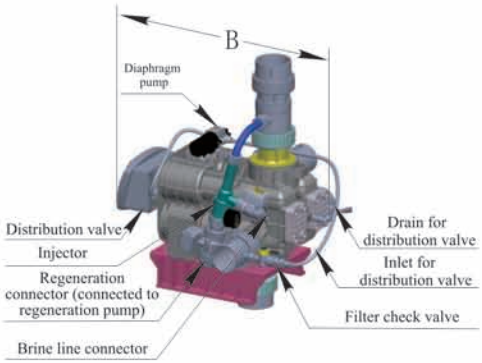
●When the water hardness exceeds the conditions, the outlet water hardness will hardly reach the requirement of boiler feed water(0.03 mmol/L). It is suggested to adopt second grade softener.

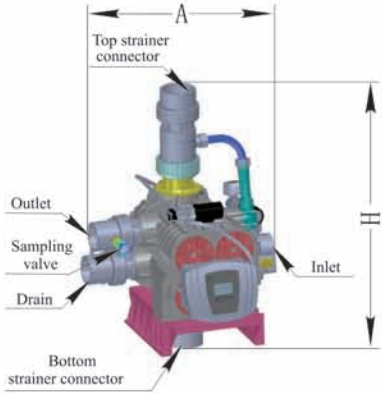
●Manual valve don't have electronic part, it need person to control the regeneration. Regeneration pump need independent circuit which controlled by person.

1.4.Product Structure and Technical Parameters

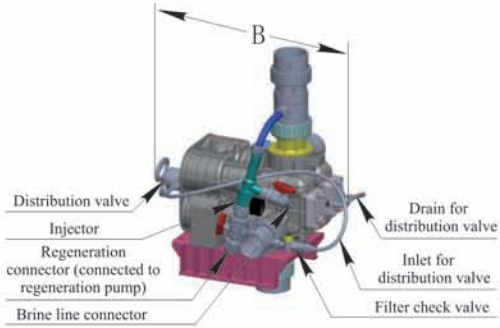
A. The appearance is just for reference. It is subjected to the real product.

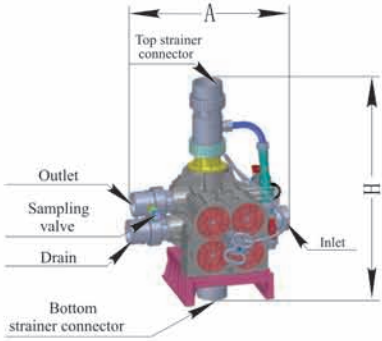
93540B:





91240B:





Model	A (mm) max	B (mm) max	H (mm) max
93540B	572	685	769
91240B	572	618	769

Notice: The instruction of 93640B/F112C3 actually is 93504B/F112C1 equipped with flow meter at outlet.

B. Technical parameter

The suitable output of transformer for control valve: DC24V, 4.0A

Model	Connector Size					Flow Rate m^3/h @0.2MPa	Regeneration Mode	Remark
	Inlet/ Outlet	Drain	Brine Line Connector	Regeneration Connector	Top and Bottom Strainer			
93540B	DN65	DN65	3/4"M	1"F	DN80	40	By days	Floating bed
93640B							Meter type	
91240B	DN65	DN65	3/4"M	1"F	DN80	40	Manual control	

Notice: M-Male thread F-Female thread

DN80—Outer diameter is ϕ90 UPVC pipeline.

DN65—Outer diameter is ϕ75 UPVC pipeline.

1.5.Installation

A. Installation notice

Before installation, read all those instructions completely. Then obtain all materials and tools needed for installation.

The installation of product, pipes and circuits, should be accomplished by professional to ensure the product can operate normally.

Perform installation according to the relative pipeline regulations and the specification of Water Inlet, Water Outlet, Drain Outlet, and Brine Line Connector.

B. Device location

1.The filter or softener should be located close to drain.

2.Ensure the unit is installed in enough space for operating and maintenance.

3.Brine tank need to be close to softener

4.The unit should be kept away the heater, and not be exposed outdoor. Sunshine or rain will cause the system damage.

5.Please avoid to install the system in one Acid/Alkaline, Magnetic or strong vibration circumstance, because above factors will cause the system disorder.

6.Do not install the filter or softener, drain pipeline in circumstance which temperature may drop below 5℃, or above 45℃.

7.One place is recommended to install the system which cause the minimum loss in case of water leaking.

C. Support installation

Take out 8 pieces of support and foot pads, and install them according to the Figure

1-1. (The parts description please refers to "5040009 support structure" on page 45.)

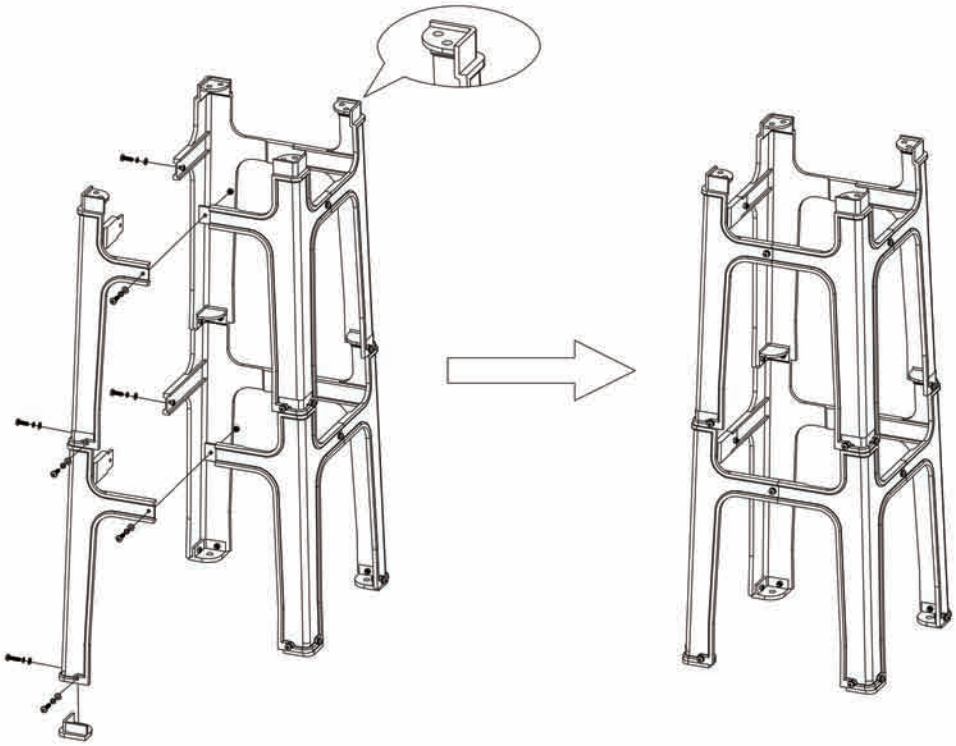


Figure 1-1

D.Pipeline installation, take 93640B as example

①Install control valve

a. As the Figure 1-2 shows, insert the bottom strainer into the bottom of the tank.

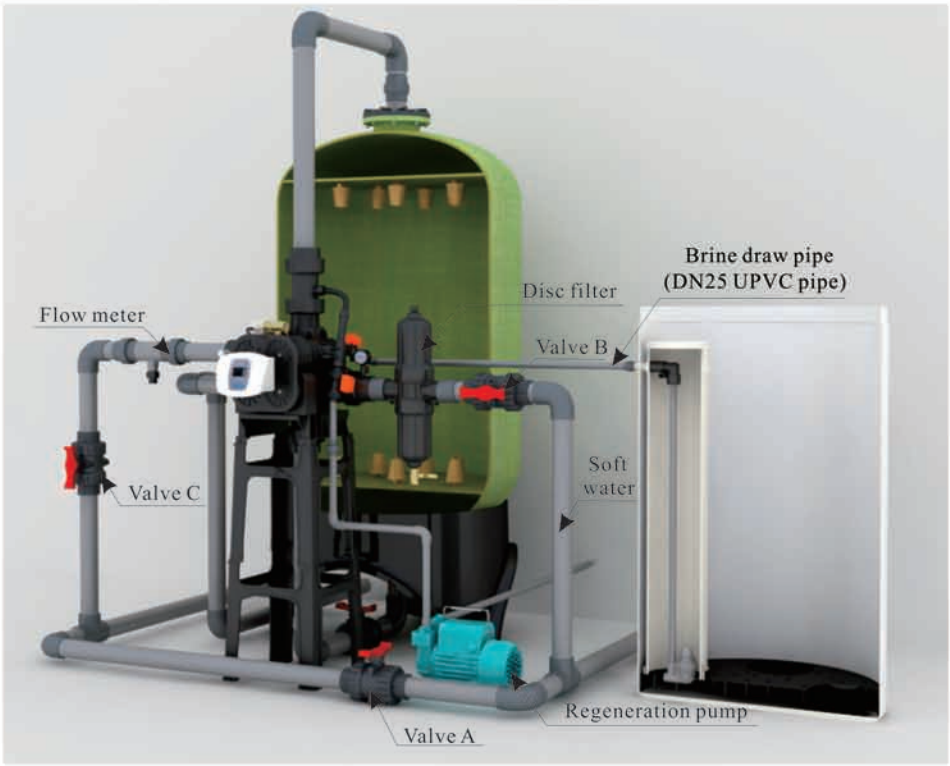


Figure 1-2

b. Fill the mineral to the tank, install the top strainer and the height is accordance with the design code. (The resin volume is filled up to 200mm from the tank opening.)

c. Connect the control valve and support with screw.

d. Choose the suitable position to install the valve. Using DN80 (Outer diameter is φ90) UPVC pipe to connect top and bottom strainer connector with tank's top and bottom strainer.

Notice:

●Piping installation should be straight, and shall not make control valves or the fittings by torsion

●Avoid floccules substance together with resin to fill in the mineral tank.

●The resin volume is filled up to 200mm from the tank opening. Or else, the resin

will be layered in disorder, which results in treated water disqualified.

●Control valve for floating bed don't need backwash, after resin used for a certain time, it should be taken out of the tank for washing. So the turbidity of the water inlet should be ＜2FTU.

●Regeneration pump is swirl self-priming type, its technical parameter includes: 3t /h rated flow rate ; 20m rated head.

②Install flow meter and the inlet/outlet pipeline

a.Install flow meter

Safe notice:

A. Before installation, make sure there is no pressure in pipeline and check if pressure released completely.

B. Before installation, make sure the tested liquid won't make corrosion for the probe. (The testing subject of the probe is water)

C. Before installation, make sure the temperature and pressure is comply with the probe's requirement.(The temperature of the liquid:1~50℃;Testing pressure:≤0.6MPa)

D. Before installation, make sure the flow rate of the liquid won't exceed the probe's range. (Testing range：1～5m/s).

E. Before installation, don't change the probe's shape structure and testing way.

F. Probe wiring couldn't connect with the transformer which has strong electric or voltage bigger than 12V. Otherwise, it will burn the electric board.

Probe test position choosing:

A. The measure distance of tangential path behind flange should comply with 10 times front and 5 times back of pipeline diameter.

B. The measure distance of tangential path behind reducer (Only allow turn big to small, but not in reverse) should comply with 15 times front and 5 times back of pipeline diameter.

C. The measure distance of tangential path behind first class equal elbow should comply with 20 times front and 5 back of pipeline diameter.

D. The measure distance of tangential path behind coplanar second class continuous equal elbow should comply with 25 times front and 5 times back of pipeline diameter.

E. The measure distance of tangential path behind non-coplanar second class continuous equal elbow should comply with 40 times front and 5 times back of pipeline diameter.

F. The measure distance of tangential path behind valve should comply with 50 times front and 5 times back of pipe diameter.

G. Suggest that install probe perpendicularly by pipeline, shouldn't be installed in the bottom of pipeline.

H. Probe can be installed in perpendicular pipeline which is upward flow direction, but also shall meet the above line requirement.

I. Probe cannot be installed in perpendicular pipeline which is downward flow direction.

J. The water in tested pipeline should be full. Make sure no air in the pipeline.

Repair and maintenance of flow meter:

A. Before the installation of probe need confirm the impeller in free rotating, there is no obvious block phenomenon.

B. When the flow meter stops measuring but the tested liquid still flow, it can check the work mode of probe online. Screw the probe nut A out, and check the working condition of the diode on the back of probe. If the diode always light on or off, it indicates the impeller in pipeline stop rotating. It shall stop pipeline working, release pressure in pipeline, and dissemble the probe to check if there is any foreign matter impact impeller rotating. After cleaning, if it can rotate normally by manually, and the diode works normally, it can continue to use after confirming the installation correct.(As Figure 1-3)

C. If the probe has impeller broken, the top bracket of probe damaged, bearing bended, after repairing but still unable to free rotation or the wetted part has corrosion, or the installation screw thread serious damaged, it shall replace a new probe.

D. If the diode on the back of probe works normally, but the display board shows incorrect, please check if the probe wire has any damage and use a multi-meter to check the voltage between shielding and black wire if normally. If the diode light on, there is no voltage output; and if the diode light off, there is voltage output.

E. As the staining in liquid may cause impeller rotation not smooth, it may affect the measurement accuracy of probe. Therefore, it shall inspect and clean the impeller of probe periodically.

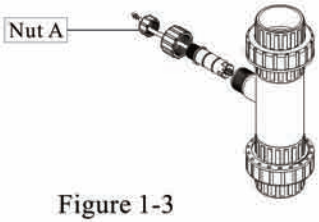


Figure 1-3

b. As Figure 1-2, install a disc filter on the inlet of the filter.

c. Install valve A, valve B and valve C on the inlet, outlet and the middle of the pipeline of inlet and outlet.

d. Glue the inlet of the system with the inlet of the valve with DN65 UPVC pipeline

(The outer diameter is ϕ75); Glue the flow meter with outlet of the valve with DN65 UPVC pipeline (The outer diameter is ϕ75); Glue the outlet of the system with flow meter with DN65 UPVC pipeline (The outer diameter is ϕ75).

e. Disassemble the front cover of the valve, and connect the flow meter to the flow meter connector of the main control board. (Refer P22 main control board figure)

Notice:

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

●When turning threaded pipe fittings onto plastic fitting, use care not to cross thread or broken valve.

●Inlet pipeline should be in parallel with outlet pipeline. Support inlet and outlet pipeline with fixed holder.

●If the valve belongs to time clock type, there is no flow meter installation step.

③Install drain pipeline (If no special request, the injector is 7802)

a. According to P24, if the diameter of the tank is 1200mm, please do as step e; if the diameter of the tank is 900mm or1000mm, please do as following steps:

b. According to P25, match the drain line flow control based on the number and size of the hole.

c. Use the manual handle as Figure 1-4 shows to open the drain connector, take out the drain line flow control, and change it to the suitable one. (Please refer the hole of P25)

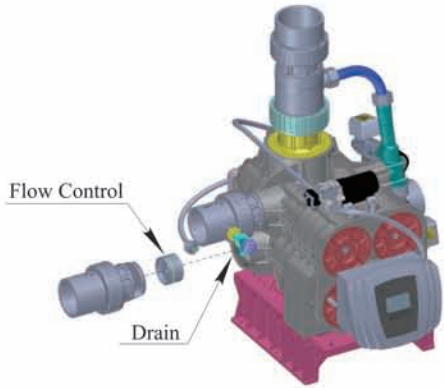


Figure 1-4

d. Tight the drain connector with the drain of the valve.

e. Use DN65 (Outer diameter is ϕ75) UPVC pipeline stick to the drain, drain pipeline

should directly to the sewer, the sewer and the drain pipeline should installed as Figure 1-5.

Figure 1-5

Notice:

●Leave a certain space between the drain pipe and the sewer, avoid waste water being absorbed to the water treatment equipment.

●The drain pipeline shouldn't be too long, and the drain shouldn't be higher than the valve. For softener, drain pipeline should not be longer than 5m; for filter, it should not be longer than 2m. If the drain pipeline is longer or higher than the requirement, please dissemble the connector between distribution valve and drain and let the drain of distribution valve connect with the air. Use G1/2 female screw to block the G1/2 male of drain. Please refer the Figure 1-6.

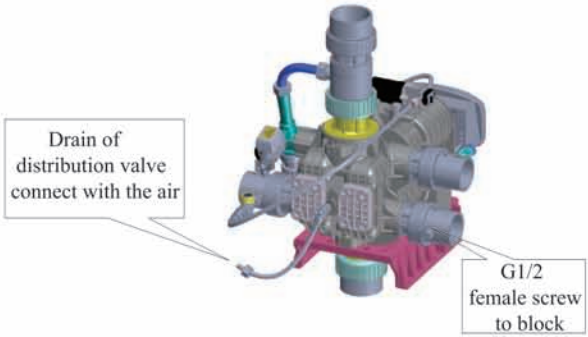


Figure 1-6

④Connect brine tube

a. As Figure 1-2 shows, use UPVC pipeline and other pipeline to connect the brine valve and the brine line connector of the valve.

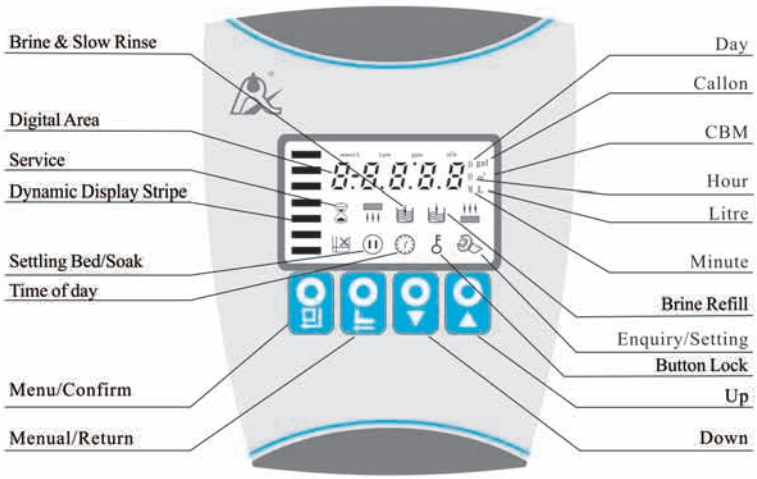
Notice

●The brine pipeline should be as short as possible, and smooth. There are less four elbows in the pipeline, or it will make the brine sucking unsmooth.

●It must install brine valve in the brine tank.

2. Basic Setting & Usage

2.1. The Function of PC Board



A. " " Time of day indicator

● " " Lights on,display the time of day.

B. " " Button lock indicator

● " " Lights on, indicate 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 " " lights off.

C. " " Program mode indicator

● " " Lights on, enter program display mode. Use " " or " " to view all values.

● " " Flashes, enter program set mode. Press " " or " " to adjust values.

D. " " Manu/Confirm button

●Press " " , " " lights on, enter program display mode and use " " or " " to view all values.

●In program display mode, press " " , " " flashes, enter program set mode, press " " or " " and adjust values.

●Press " " after all program are set, and then the voice "Di" means all setting are success and return program display mode.

E. " " Manual/Return button

●Press " " in any status, it can proceed to next step. (Example: Press " " in Service status, it will start regeneration cycles instantly; Press " " while it is in Backwash status, it will end backwash and go to Brine &Slow Rinse at once.)

●Press " " in program display mode, and it will return in Service; Press " " in program set mode, and it will return program display mode.

●Press " " while adjusting the value, then it will return program display mode directly without saving value.

F. Down " " and Up " "

●In program display mode, press " " or " " to view all values.

●In program set mode, press " " or " " to adjust values.

●Press and hold both " " and " " for 5 seconds to lift the Button Lock status.

2.2. Basic Setting & Usage

A. Parameter specification (Take 93640B A-01 mode as example)

Function	Indicator	Factory Default	Parameter Set Range	Instruction
Time of Day		Random	00:00~23:59	Set the time of day when use; " : " flash.
Control Mode	A-01	A-01	A-01	Meter delayed: Regenerate on the day although the available volume of treated water drops to zero (0). Regeneration starts at the regeneration time.
			A-02	Meter immediate: Regenerate immediately when the available volume of treated water drops to zero(0).

Regene-ration Time	02:00	02:00	00:00~23:59	Regeneration time; " : " light on.
Water Treatment Capacity		400m^3	0~9999.9m^3	Water treatment capacity in one circle (m^3).
Settling Bed Time		10min	0~99:59	Settling bed time
Brine Drawing Time		60min	0~99:59	Brine drawing time
Soak Time		1min	0~99:59	Soak time
Slow Rinse Time		45min	0~99:59	Slow rinse time
Fast Rinse Time		10min	0~99:59	Fast rinse time
Brine Refill Time		5min	0~99:59	Brine refill time
Maximum Interval Regeneration Days	H-30	30	0~40	Regenerate on the day even through the available volume of treated water do not drop to zero (0).

B. Process Display (Take 93640B A-01 Mode as example)

Figure A

Figure B

Figure C

Figure D

Figure E

Figure F

Figure G

Figure H

Figure I

Figure J

Illustration:

● In Service status, the figure shows A/B/C/D; In Settling Bed status, it shows figure E/C; In Brine Drawing status, it shows figure F/C; In Soak status, it shows G/C; In Slow Rinse status, it shows figure H/C; In Fast Rinse status, it shows figure I/C. In Brine Refill status, it shows figure J/C. In each status, every figure shows 15 seconds.

● Above displays are taking 93640B for example. For the Time Clock Type, it shows the rest days or hours, such as 1-03D.

● The display screen will only show "-00-" when the electrical motor is running.

● The time of day figure " " flash continuously, such as "12: 12" flashes, indicates long outage of power. It reminds to reset the time of day.

● The display will show the error code, such as "-E1-" when the system is in error.

● Working process: Service→ Settling Bed→ Brine Drawing →Soak→ Slow Rinse → Fast Rinse→ Brine Refill→ Service.

C. Usage

After being accomplished installation, parameter setting and trail running, the valve could be put into use. In order to ensure the quality of outlet water can reach the requirement, the user should complete the below woks:

① Ensure that there is solid salt all the time in the brine tank in the course of using when this valve is used for softening. The brine tank should be added the clean water softening salts only, at least 99.5% pure, forbidding use the fine salt and iodized salt.

② Test the outlet water and raw water hardness at regular time. When the outlet water hardness is unqualified, please press the " " and the valve will temporary regenerate again(It will not affect the original set operation cycle).

③ When the feed water hardness changed a lot, you can adjust the water treatment capacity as follow:

Press and hold both " " and " " for 5 seconds to lift the lock status. Press " " , and the " " lights on, then press " " , the digital area will show

control mode A-01 or A-02. Press " ▼ " twice to the digital area, it will show the given water treatment capacity. Press " ⊡ " again, " ⚙ " and digital flash, then press " ▼ " or " ▲ " to reset the value to be requested. Press " ⊡ " twice and hear a sound "Di", then finish the adjustment. Press " ↩ " exit and turn back the service status.

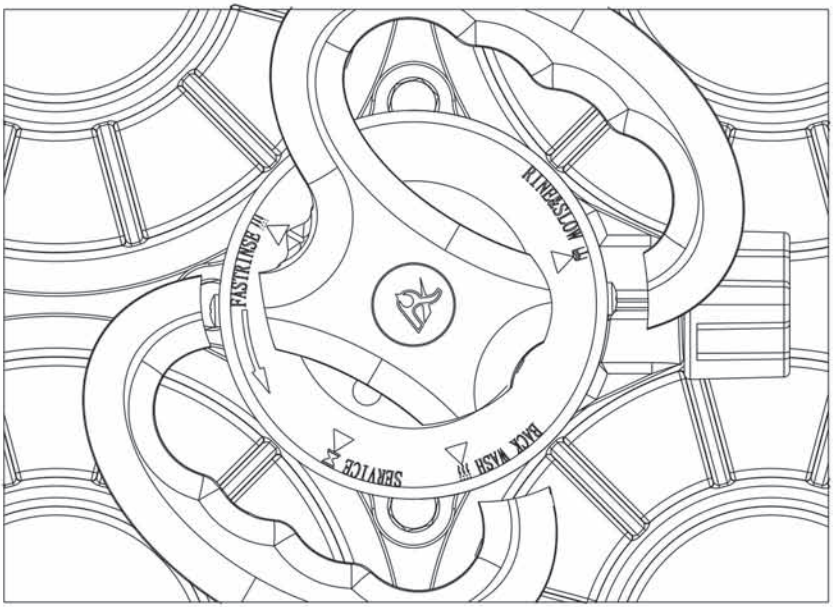
The estimation of water treatment capacity, you can refer to the professional application specification.

For A-01 control mode (Delayed regeneration type), please pay attention to whether the time is current or not. If the time is not right, you can adjust as follow: After lifting the lock status, press " ⊡ ", the " ⚙ " and " 🕐 " light on. Then press " ⊡ " , the " ⚙ " and hour value flash. Press " ▲ " or " ▼ " continuously, reset the hour value; Press " ⊡ " again, " ⚙ " and minute value flash. Press " ▲ " or " ▼ " continuously, reset the minute value; Press " ⊡ " and hear a sound "Di", then finish the adjustment. Press " ↩ " exit and turn back the service status.

The regeneration parameters have been set when control valve left factory. Generally, it does not need to reset. If you want enquiry and modify the setting, you can refer to the professional application specification.

2.3. Usage of Manual Wheel

During operation of this series control valve, rotate the manual wheel to make the pointer point to the relevant position and carry out Service, Settling Bed, Brine Drawing, Soak, Slow Rinse, Fast Rinse, Brine refill as below figure.

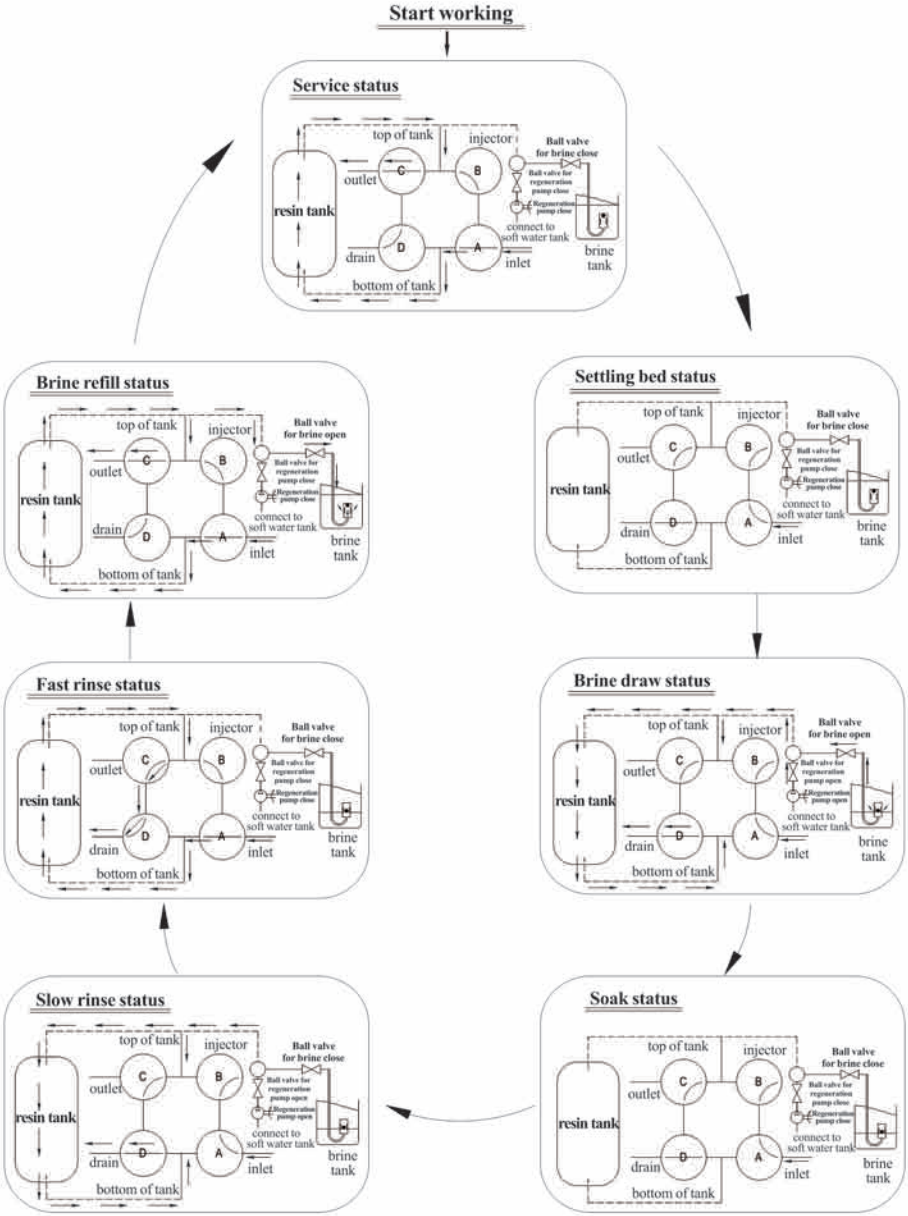


Detail cooperation as below:

Status	Place of pointer		Brine connector manual ball valve	Regeneration connector manual ball valve	Regen-eration pump
Service		SERVICE	close	close	close
Settling bed		BRINE&SLOWR	close	close	close
Brine draw		BRINE&SLOWR	open	open	open
Soak		BRINE&SLOWR	close	close	close
Slow rinse		BRINE&SLOWR	close	open	open
Fast rinse		FAST RINSE	close	close	close
Brine refill		SERVICE	open	close	close

3.Applications

3.1.Flow Chart



Note:

●Brine refill is at the same time of service. Soft water flows through top strainer to brine tank. When brine refill starts, the ball valve is opened, while it finished, the ball valve closes.

3.2. The Function and Connection of PC Board

Open the front cover of control valve, see figure 3-1, you will see the main control board and connection port as below:

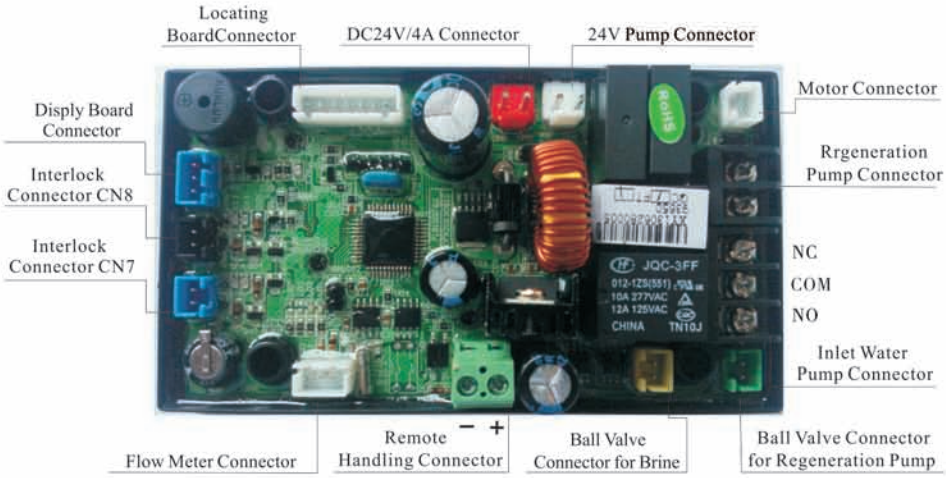


Figure 3-1

A. Remote handling connector

Figure 3-2 Wiring connection of remote handling connector

B. Inlet water pump and regeneration pump connector
(Wiring connection as below Figure 3-3/4/5/6)

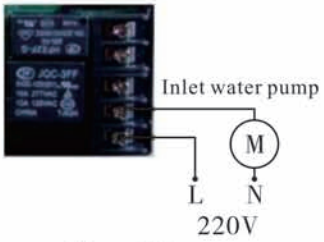


Figure3-3
Wiring of inlet water pump
(Pump less than 1KW)

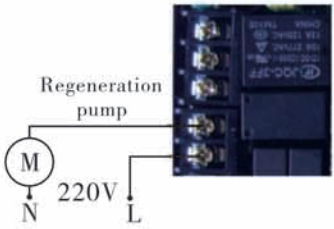


Figure3-4
Wiring of regeneration pump
(Pump less than 1KW)

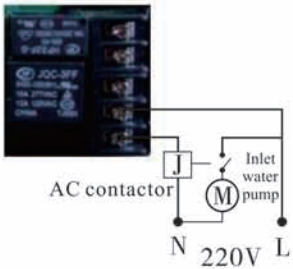


Figure 3-5
Wiring of inlet water pump
(Pump bigger than 1KW)

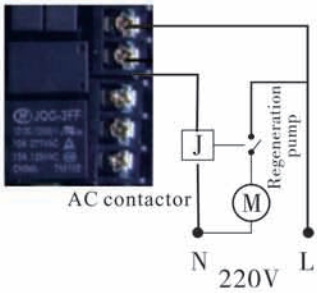


Figure3-6
Wiring of regeneration pump
(Pump bigger than 1KW)

C. Interlock Connector

Instruction:

In the parallel water treatment system, it ensure only one valve in regeneration or washing cycle and (n-1) valves in service, that is, realizing the function of supplying water simultaneously and regenerating individually.

In the series and parallel water treatment system (Second grade Na+ Exchanger or RO pre-treatment system), it ensures only one valve in regeneration or washing cycle and there is/are water(s) in service. Refer to Figure3-7:

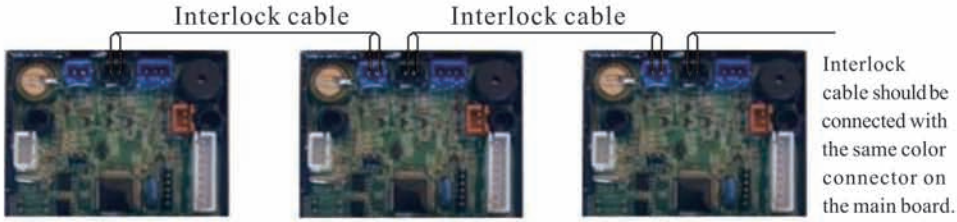


Figure 3-7 Wiring of interlock

Use Interlock Cable to connect black one to blue one on next valve in the loop. One system with several valves, if interlock cable is disconnected, the system will be divided into two individual systems.

3.3 System Configuration and Flow Rate Curve

A. Product Configuration

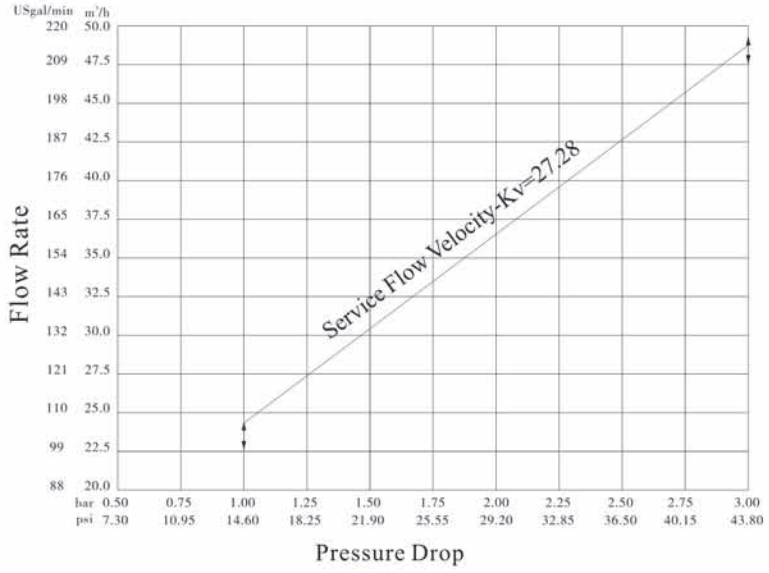
Floating bed configuration with tank, resin volume, brine tank and injector.

Tank Size (mm)	Resin Volume (L)	Flow Rate (t/h)	Brine Tank Size (mm)	The Minimum Salt Consumption for Regeneration (Kg)	Injector Model
φ900×2400	1300	28.0	φ1080×1460	133.00	7801
φ1000×2400	1600	35.0	φ1240×1575	164.00	7801
φ1200×2400	2300	50.0	φ1360×1690	235.00	7802

Note: The flow rate calculation is based on linear velocity 45m/h; the minimum salt consumption for regeneration calculation is based on salt consumption 100g / L (Resin).

B. Flow Rate Characteristic

1). Pressure-flow rate curve



2).Configuration for standard injector and drain line flow control

Tank Dia. (mm)	Injector Model	Injector Color	Draw Rate	Slow Rinse Rate	Brine Refill Rate	Hole Qty on Drain Outlet	Fast Rinse Rate
			L/h	L/h	L/h		t/h
900	7801	Coffee	3334	1868	6726	/	12.78
1000							
1200	7802	Pink	4960	2700	6718	2× ϕ7	17.87

Note:

①.The above" Fast Rinse Rate" data in table is tested under pressure of 0.3MPa. Others are tested with regeneration pump which shows in Figure 1-2.

②.The above data are only for reference. For actual configuration should be set according to the hardness of raw water, different requirements of using water and so on.

③.If the real goods are different in specification, configuration or appearance, please subject to the real goods.

④.The hole is made depending on the size of matched tank in practical application. The hole's numbers and size are made based on the above table.

⑤.The products don't have any special request, the injector is 7802.

3.4.Parameter settlement

①.Service timeT1

Water treatment capacity:

$Q=V_R \times K \div Y_D$ (m^3)

- Y_D — Hardness of Inlet Water (mmol/L)
- K — Exchange factor (mmol/L) 400~1000. Down-flow regeneration, take 400~750. Up-flow regeneration, take 450~1000. If the inlet water hardness is higher, the factor is smaller.
- V_R — Resin volume(m^3)

By days: $T1=Q \div Q_D$(Day)

- Q_D — Water treatment capacity per day (m^3/d)
- Q — Water treatment capacity (m^3)

②.Settling bed time T2

It is suggested to be set 8-12 minutes.

③.Brine drawing time T3

$T3=(40\sim50)\times H_R$ (min.)

Generally, $T3=45H_R$ (min.) (It is better within 45~65min.)

In this formula, H_R——The height of resin in exchange tank (m.)

④.Soak time T4

Can be choose from 0~200 min. to the request.

⑤.Slow rinse time T5

Generally within 20~40 min.

⑥.Fast rinse time T6

Generally, the water for fast rinse is 3~6 times of resin volume. It is suggested to be set 10~16 minutes, but subject to the outlet water reaching the requirement.

⑦.Brine refill timeT7

Up-flow regeneration: T7＝0.34×Vr÷Brine refill speed (min.)

In this formula, Vr—— Resin volume (m^3)

The brine refill speed is related to inlet water pressure. It is suggested to lengthen 1~2 minutes of calculated brine refilling time to make sure there is enough water in tank. (The condition is that there is a level controller installed in the brine tank)

⑧.Exchange factor

Exchange factor =E/ (k×1000)

In this formula,E——Resin working exchange capability(mol/m3),it is related to the quality of resin. Down-flow regeneration, take 800~900. Up-flow regeneration, take 900~1200.

K——Security factor, always take 1.2~2. It is related to the hardness of inlet water: the higher the hardness is, the bigger the K is.

⑨.Regeneration time：

The whole cycle for generation is about two hours. Please try to set up the regeneration time when you don't need water according to the actual situation.

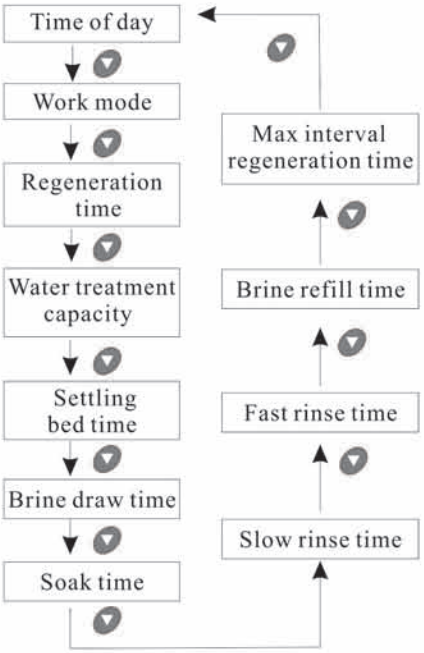
The calculation of parameters for each step is only for reference, the actual proper time will be determined after adjusting by water exchanger supplier. This calculation procedure of softener is only for industrial application; it is not suitable for small softener in residential application.

3.5.Parameter Enquiry and Setting

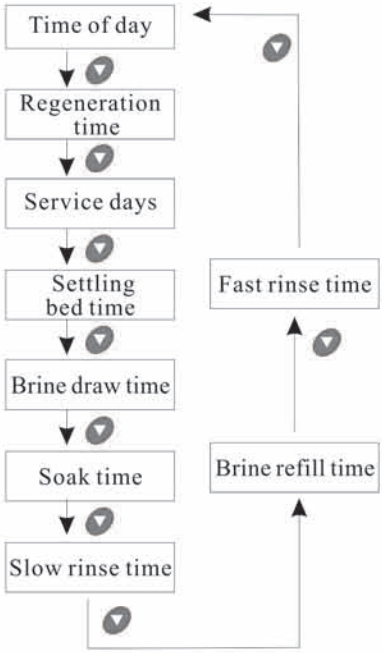
3.5.1.Parameter Enquiry

When " " light on, press and hold both " " and " " for 5 seconds to lift the button lock status; then press " " and " " light on, enter to program display mode; press " " or " " to view each value according to below process.(Press " " exit and turn back to service status)

93604B:(Take A-01 for example)



93540B:



3.5.2. Parameter Setting (Take 93604B A-01 mode as example)

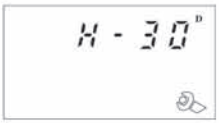
In program display mode, press " " and enter into program set mode. Press " " or " " to adjust the value.

3.5.4. The Steps of Parameter Setting

Items	Process steps	Symbol
Time of Day	When time of day "12:12" continuously flash, it reminds to reset; 1. Press " " to enter into program display mode; both " " and " " symbol light on, " : "flash;	

	Press " ⏻ ", both " ⏱ " and hour value flash, through " ▲ " or " ▼ " to adjust the hour value; 2. Press " ⏻ " again, both " ⏱ " and minute value flash, through " ▲ " or " ▼ " to adjust the minute value; 3. Press " ⏻ " and hear a sound "Di", then finish adjustment, press " ↩ " to turn back.	
Control Mode	1. In control mode display status, press " ⏻ " and enter into program set mode, " ⏱ " and 01 value flash; 2. Press " ▲ " or " ▼ " ,set the value to be A-01or A-02 control mode; 3. Press " ⏻ " and hear a sound "Di", then finish adjustment, press " ↩ " to turn back.	
Regen–eration Time	1.In regeneration time display status, press " ⏻ " and enter into program set mode. It shows 02:00. " ⏱ " and 02 flash. Press " ▲ " or " ▼ " to adjust the hour value; 2.Press " ⏻ " , " ⏱ " and 00 flash, press " ▲ " or " ▼ " to adjust the minute value; 3. Press " ⏻ " and hear a sound "Di", then finish adjustment, press " ↩ " to turn back.	
Water Treatme-nt Capacity	1. In water treatment capacity display status, it shows " ⏳ " and 400.0. Press " ⏻ " and enter into program set mode. " ⏱ " and 400 flash; 2. Press " ▲ " or " ▼ " to adjust the water treatment capacity value (m^3); 3. Press " ⏻ " , decimal value flashes. Press " ▲ " or " ▼ " to adjust the decimal value; 4. Press " ⏻ " and hear a sound "Di", then finish adjustment, press " ↩ " to turn back.	
Settling Bed Time	1. In settling bed time display status, it shows " ⏸ " and 2-10:00. Press " ⏻ " and enter into program set mode. " ⏱ " and 10 flash; 2. Press " ▲ " or " ▼ " to adjust the settling bed minute time; 3. Press " ⏻ " , 00 flash. Press " ▲ " or " ▼ " to adjust the settling bed second value; 4. Press " ⏻ " and hear a sound "Di", then finish adjustment, press " ↩ " to turn back.	

Brine Draw Time	1. In brine draw time display status, it shows " " and 3-60:00. Press " " and enter into program set mode. " "and 60 flash; 2. Press " " "or " " to adjust the brine draw minute time; 3. Press " ", 00 flash. Press " " "or " " "to adjust the brine draw second value; 4. Press " "and hear a sound "Di", then finish adjustment, press " " to turn back.	
Soak Time	1. In soak time display status,it shows " " and 4-01:00.Press " "and enter into program set mode, " "and 01 flash; 2.Press " "or " "to adjust the soak minute time; 3.Press " ",00 flash.Press " " "or " " "to adjust the soak second value; 4.Press " " and hear a sound "Di", then finish adjustment, press " " to turn back.	
Slow Rinse Time	1. In slow rinse time display status, it shows " " and 5-45:00. Press " " and enter into program set mode." " and 45 flash; 2. Press " " or " " to adjust the slow rinse minute time; 3. Press " " , 00 flash. Press " " or " " to adjust the slow rinse second value; 4. Press " " and hear a sound "Di", then finish adjustment, press " " to turn back.	
Fast Rinse Time	1. In fast rinse time display status, it shows " " and 6-10:00. Press " " and enter into program set mode. " " and 10 flash; 2. Press " " or " " to adjust the fast rinse minute time; 3. Press " " , 00 flash. Press " " or " " to adjust the fast rinse second value; 4. Press " " and hear a sound "Di", then finish adjustment, press " " to turn back.	

Brine Refill Time	1. In brine refill time display status, it shows " " and 7-05:00, Press " " "and enter into program set mode. " "and 05 flash; 2. Press " " "or " " "to adjust the brine refill minute time; 3. Press " ", 00 flash. Press " " "or " " "to adjust the brine refill second value; 4. Press " " "and hear a sound "Di", then finish adjustment, press " " "to turn back.	
Maximum Interval Regeneration Days	1. In maximum Interval regeneration days display status, it shows H-30. Press " " " and enter into program set mode. " " and 30 flash; 2. Press " " " or " " " to adjust the Interval regeneration days; 3. Press " " " and hear a sound "Di", then finish adjustment, press " " " to turn back.	

For example，the fast rinse time of a softener is 12 minutes. After regenerating, the chloridion in the outlet water is always higher than normal, indicating that there is no enough time for fast rinse. If you want the time to set to 15 minutes, the modification steps as follows:

① Press and hold both " " and " " to lift the button lock status (" " light off);

② Press " " ,and " " light on;

③ Press " " or " " continuously until " " light on. Then the digital area shows: 6-12:00M;

④ Press " " , " " and 12 flash;

⑤ Press " " continuously until 12 changed to 15;

⑥ Press " " , there is a sound "Di" and the figure stop flashing; the program back to inquiry status;

⑦ If you want to adjust other parameters, you can repeat the steps from ② to ⑤ if you don't, press " " and quit from the inquiry status, the display will show the current service status.

3.6. Trial Running

After installing the multi-functional flow control valve on the resin tank with the connected pipes, as well as setting up the relevant parameters, please conduct the trail running as follows:

A. Close the inlet valve B & C, and open the bypass valve A. After cleaning the foreign materials in the pipe, close the bypass valve A. (As Figure 1-2 shows)

B. Fill the brine tank with the planned amount of water and adjust the air check valve. Then add solid salt to the tank and dissolve the salt as much as possible.

C. Switch on power. Press " " and go in the Fast Rinse position; when " " light on, slowly open the inlet valve B to 1/4 position, making the water flow into the resin tank; you can hear the sound of air-out from the drain pipeline. After all air is out of pipeline, then open inlet valve B completely and clean the foreign materials in the resin tank until the outlet water is clean. It will take 8~10 minutes to finish the whole process.

D. Press " " twice, finish fast rinse turning the position from Fast Rinse to Settling Bed; " " light on and enter in the process of Settling Bed. The default settling bed time is 10 minutes.

E. Press " " finish settling bed, turning the position from Settling Bed to Brine Drawing; " " light on and enter in the process of Brine Drawing. It is about 60 minutes.

F. Press " " finish brine draw, turning the position from Brine Drawing to Slow Rinse; " " light on and enter in the process of Slow Rinse. It is about 45 minutes. (Normally don't need soak, if it is requested, can set soak time by yourself)

G. Press " " finish show rinse, turning the status from Slow Rinse to Fast Rinse. " " light on and start to fast rinse. After 10minutes, take some outlet water for testing: if the water hardness reach the requirement, and the chloridion in the water is almost the same compared with the inlet water, then go to the next step.

H. Press " " finish fast rinse, turning the position from Fast Rinse to Brine Refill. " " light on (Meanwhile it is in Service status) and it indicates the brine tank is being refilled with water to the required level. It takes about 5~6minutes, then add solid salt to the brine tank.

I. Press " " finish brine refill, making the control valve return to Service Status; " " light on and start to running.

Note:

When the control valve enter into the regeneration status, all program can be finished automatically according to the setting time; if you want one of steps terminated early, you can press " ".

If water inflow too fast, the media in tank will be damaged. When water inflow

slowly, there is a sound of air emptying from drain pipeline.

After changing resin, please empty air in the resin according to the above Step C.

In the process of trial running, please check the water situation in all position, ensuring there are no resin leakage.

The time for settling bed, Brine drawing, Slow Rinse, Fast Rinse, and Brine Refill status can be set and executed according to the calculation in the formula or suggestions from the control valve suppliers.

3.7.Trouble-Shooting

A. Control Valve Fault

Problem	Cause	Correction
1. Softener fails to regenerate.	A. Electrical service to unit has been interrupted. B. Regeneration cycles set incorrect. C. Controller is defective. D. Motor fails to work.	A. Assure permanent electrical service (Check fuse, plug, pull chain or switch). B. Reset regeneration cycles. C. Replace controller. D. Replace motor.
2. Regeneration time is not correct.	A. Time of Day doesn't set correctly. B. Power failure more than 3 days.	Check program and reset time of day.
3. Softener supply hard water.	A. Bypass valve is open or leaking. B. No salt in brine tank. C. Injector plugged. D.Insufficient water flowing into brine tank. E. Internal valve leak. F. Regeneration cycles not correct. G. Shortage of resin. H. Raw water quality turns bad or flow meter blocked.	A. Close or repair bypass valve. B. Add salt to brine tank and maintain salt level above water level. C. Change or clean injector. D. Check brine tank refill time. E. Change valve body. F. Set correct regeneration cycles in the program. G. Add resin to mineral tank and check whether resin leaks. H. Reduce the raw water turbidity or clean or replace the flow meter.
4. Softener fails to draw brine.	A. Line pressure is too low. B. Brine line is plugged. C. Brine line is leaking. D. Injector is plugged. E. Internal control leak. F. Drain line is plugged.	A. Increase line pressure. B. Clean brine line. C. Replace brine line. D. Clean or replace new parts. E. Replace valve body. F. Clean drain line flow control.

	G. Sizes of injector and DLFC not match with tank. H. Ball valve or cable failure.	G. Select correct injector size and DLFC according to the P25 requirements. H. Replace ball valve or cable.
5. Unit used too much salt.	A. Improper salt setting. B. Excessive water in brine tank.	A. Check salt usage and salt setting. B. See problem no.6.
6. Excessive water in brine tank.	A. Overlong refilling time. B. Foreign material in brine line. C. Foreign material in brine valve and plug drain line flow control. D. Not install safety brine valve but power failure while salting. E. Safety brine valve breakdown. F. Ball valve doesn't close completely.	A. Reset correct refilling time. B. Clean brine line. C. Clean brine valve and brine line. D. Stop water supplying and restart or install safety brine valve in salt tank. E. Repair or replace safety brine valve. F. Repair or replace ball valve.
7. Pressure lost or iron in conditioned water.	A. Iron in the water supply pipe. B.Iron mass in the softener. C. Fouled resin bed. D. Too much iron in the raw water.	A. Clean the water supply pipe. B. Clean valve and add resin cleaning chemical, increase frequency of regeneration. C. Check backwash, brine draw and brine tank refill. Increase frequency of regeneration and backwash time. D. Iron removal equipment is required to install before softening.
8. Loss of resin through drain line.	A. Air in water system. B. Bottom strainer broken. C. Improperly sized drain line control.	A. Assure that well system has proper air eliminator control. B. Replace new bottom strainer. C. Check for proper drain rate.
9. Control cycle continuously.	A. Locating signal writing breakdown. B. Controller is faulty. C. Foreign material stuck the driving gear. D. Time of regeneration steps were set to zero.	A. Check and connect locating signal wiring. B. Replace controller. C. Take out foreign material. D. Check program setting and reset.
10. Drain flows continuously.	A. Internal valve leak. B. When electricity fails to supply, valve stops backwash or fast rinse position.	A. Check and repair valve body or replace it. B. Adjust valve to service position or turn off bypass valve and restart when electricity supply.

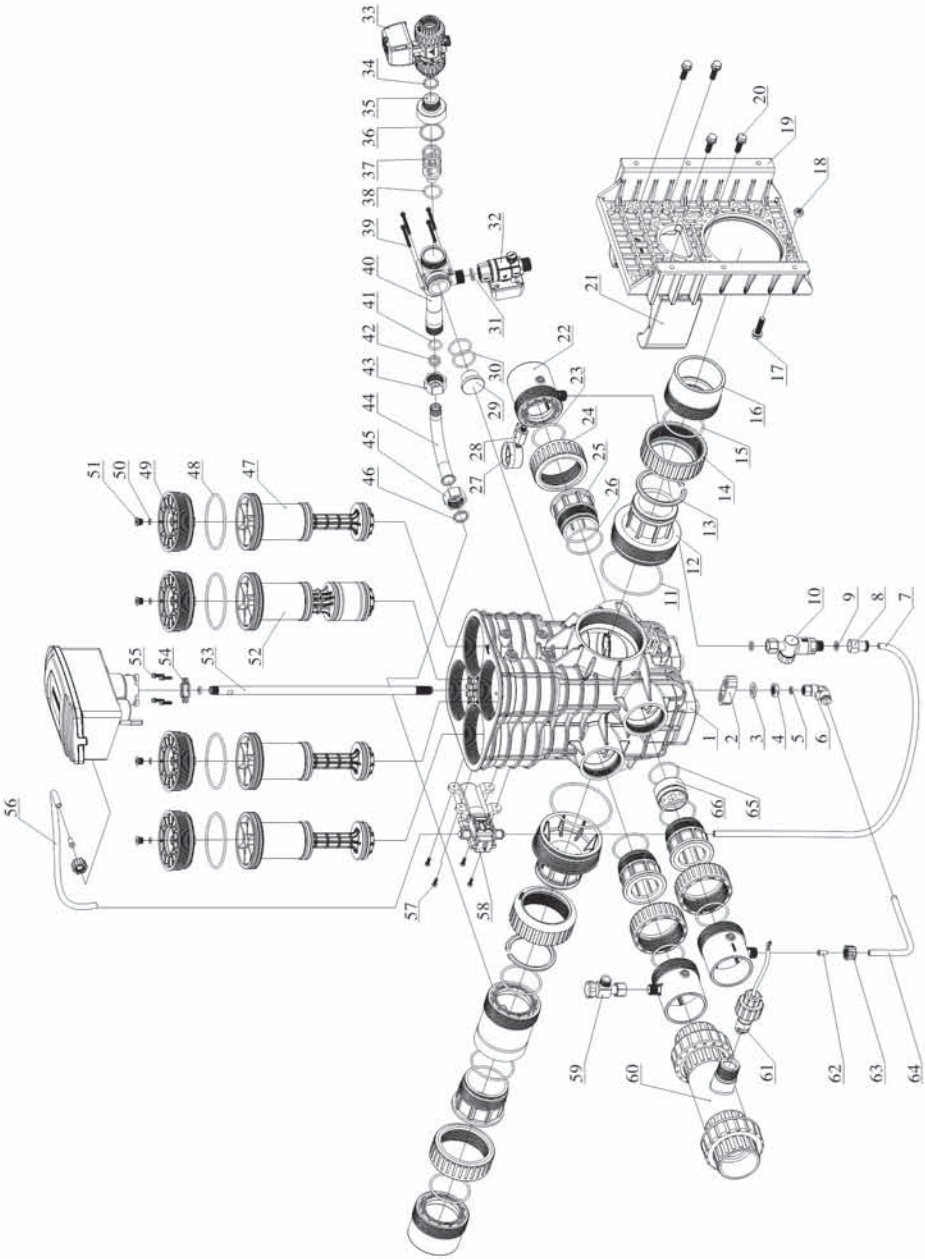
11. Interrupted or irregular brine.	A. Water pressure too low or not stable. B. Injector is plugged or faulty. C. Air in resin tank. D. Floccules in resin tank during backwash. E. Strainer is plugged.	A. Increase water pressure. B. Clean or replace injector. C. Check and find the reason. D. Clean the floccules in resin tank. E. Clean the broken resin from strainer.
12. Water flow out from drain or brine pipe after regeneration.	A. Foreign material in valve which makes valve can't be closed completely. B. Hard water mixed in valve body. C. Water pressure is too high which result in valve doesn't get the right position. D. Ball valve is not being closed completely.	A. Clean foreign material in valve body. B. Change valve core or sealing ring. C. Reduce water pressure or use pressure release function. D. Repair or replace the ball vale or the wire.
13. Salt water in soften water.	A. Foreign material in injector make it fails to work. B. Brine valve cannot be shut-off. C. Time of rapid rinse too short.	A. Clean and repair injector. B. Repair brine valve and clean it. C. Extend rapid rinse time.
14. Unit capacity decreases.	A. Unit fails to regenerate or regenerate not properly. B. Fouled resin bed. C. Salt setting not proper. D. Softener setting not proper. E. Raw water quality deterioration. F. Turbine of flow meter is stuck.	A. Regenerate according to the correct operation requirement. B. Increase backwash flow rate and time, clean or change resin. C. Readjust brine drawing time. D. According to the test of outlet water, recount and reset. E. Regenerate unit by manual temporary, then reset regeneration cycle. F. Disassemble flow meter and clean it or replace a new turbine.

B. Controller Fault

Problem	Cause	Correction
1. All indictors display on front panel.	A. Wiring of front panel with controller fails to work. B. Control board is faulty. C. Transformer damaged. D. Electrical service not stable. E. Display board is damaged.	A. Check and replace the wiring. B. Replace control board. C. Check and replace transformer. D. Check and adjust electrical service. E. Replace the display board.
2. No display on front panel.	A. Wiring of front panel with controller fails to work. B. Front panel damaged. C. Control board damaged. D. Electricity is interrupted.	A. Check and replace wiring. B. Replace front panel. C. Replace control board. D. Check electricity.
3. E1 Flashes	A. Wiring of locating board with controller fails to work. B. Locating board damaged. C. Mechanical driven failure. D. Faulty control board. E. Wiring of motor with controller is fault. F. Motor damaged.	A. Replace wiring. B. Replace locating board. C. Check and repair mechanical part. D. Replace control board. E. Replace wiring. F. Replace motor.
4. E2 Flashes	A. Hall component on locating board damaged. B. Wiring of locating board with controller fails to work. C. Control board is faulty.	A. Replace locating board. B. Replace wiring. C. Replace control board.
5. E3 or E4 Flashes	A. Control board is faulty.	A. Replace control board.

3.8.Spare Part and Part No.

93640B Structure(Main body part)



93640B Valve Body Components and Part No.

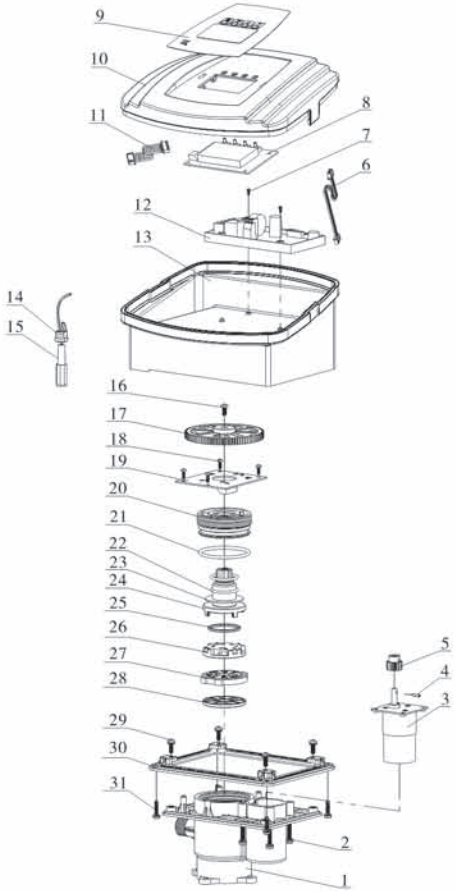
Item	Description	Part No.	Quantity	Item	Description	Part No.	Quantity
1	Valve Body	5022088	1	34	Seal Ring	8371048	2
2	Gasket	8156003	1	35	Connector	8458083	1
3	Washer	8952003	1	36	Seal Ring	8371006	1
4	Nut	8940005	1	37	Nozzle	8454023	1
5	Seal Ring	8371011	2	38	O-ring	8378104	8
6	Air Pipeline Connector	8455001	1	39	Hexagonal Bolt Set	5851005	1
7	Air Pipeline	8465016	1	40	Injector Body	8008005	1
8	Air Pipeline Connector	5455005	1	41	O-ring	8378113	1
9	Seal Ring	8371021	1	42	O-ring	8378162	2
10	Filter Check Valve	3917005	1	43	Nut	8940007	1
11	O-ring	8378214	2	44	Elbow Pipeline	8457104	1
12	Connector	8458104	2	45	Nut	8940006	1
13	Clip	8270017	2	46	Seal Ring	8371001	1
14	Animated Nut	8947036	2	47	Piston	5450003	3
15	O-ring	8378138	3	48	O-ring	8378263	12
16	Connector	8458024	2	49	Top Cover	8315064	4
17	Hexagonal Bolt Set	5851009	1	50	O-ring	8378031	4
18	Hexagonal Nut	8940023	4	51	Plug	8323016	4
19	Fixer	8109053	1	52	Piston	5450004	1
20	Hexagonal Bolt Set	5851001	4	53	Pipe	8457075	1
21	Support	5156004	2	54	Seal Ring	8371009	8
22	Connector	8458021	3	55	Hexagonal Bolt Set	5851006	4
23	O-ring	8378137	3	56	Pipeline	8465015	1
24	Animated Nut	8947007	3	57	Screw, Cross	8909019	4
25	Connector	8458020	3	58	Diaphragm Pump	2976091	1
26	O-ring	8378127	3	59	Corner Valve	3911004.05	1

27	Pressure Gauge	6342001	1	60	Tee Valve	5457009	1
28	Pressure Gauge Protect Valve	2976013	1	61	Impeller Set	5295004	1
29	Plug	8323035	1	62	Pipe	8457025	2
30	O-ring	8378101	2	63	Hexagonal Nut	8940016	2
31	Seal Ring	8371019	1	64	Pipeline	8465019	1
32	Electronic Ball Valve	6922075	1	65	O-ring	8378125	1
33	Electronic Ball Valve	6922080	1	66	Flow Control	8468046	1

Note:

● For 93540B components, there is no #60 and #61 compared to 93640

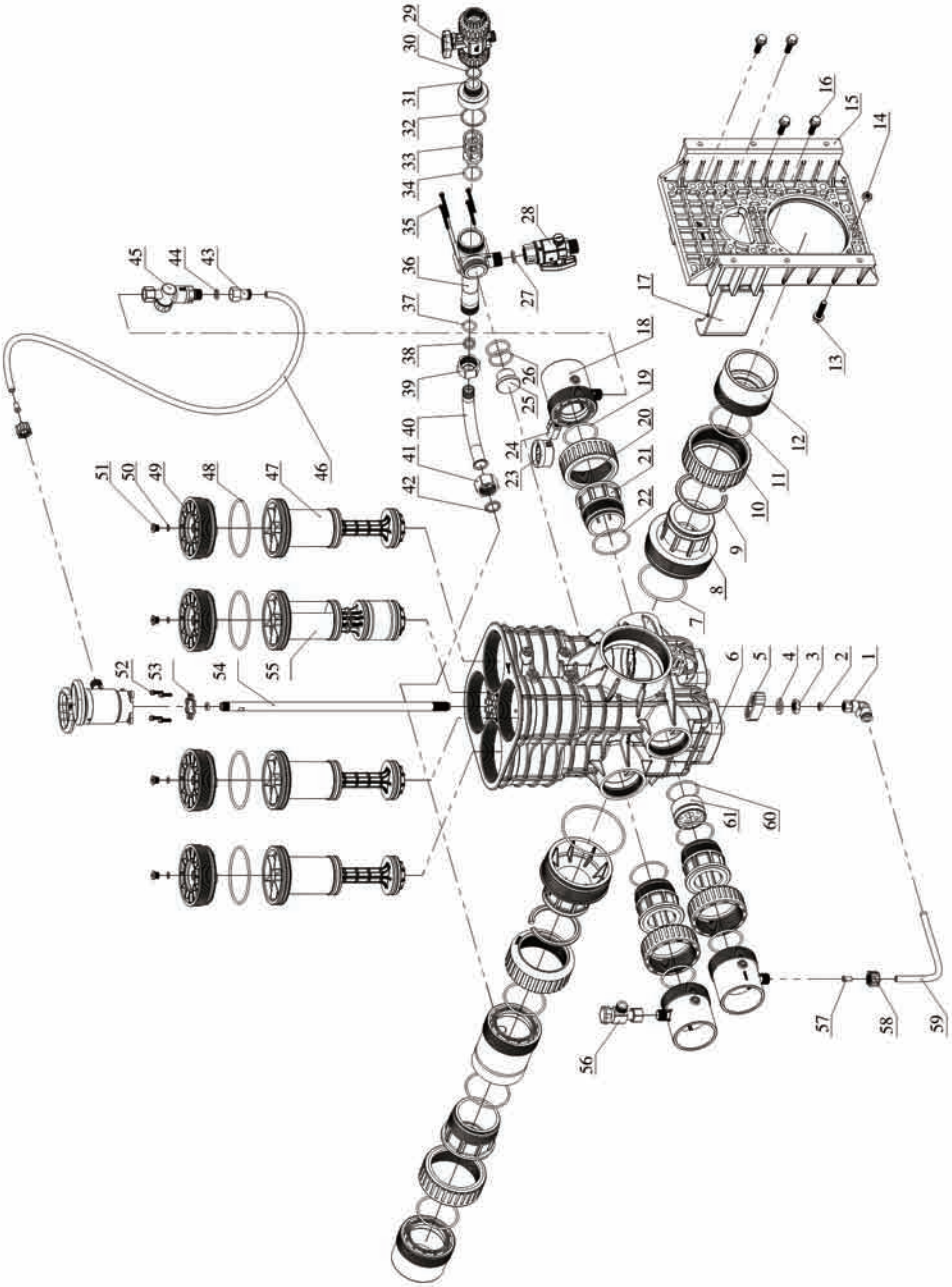
93640B Distribution Valve



93640B Distribution Valve Components and Part No.

Item	Description	Part No.	Quantity	Item	Description	Part No.	Quantity
1	Valve Body	5022028	1	17	Gear	5241005	1
2	Screw, Cross	8902008	4	18	Screw, Cross	8909008	4
3	Motor	6158007	1	19	Locating Board	6380041	1
4	Pin	8993001	1	20	Fitting Nut	8092007	1
5	Small Gear	8241010	1	21	O-ring	8378107	1
6	Wire of Locating Board	5511019	1	22	O-ring	8378078	2
7	Screw, Cross	8909004	2	23	Anti-friction Washer	8216010	1
8	Display Board	6381003	1	24	Shaft	8258009	1
9	Label	8865001	1	25	Moving Seal Ring	8370053	1
10	Control Box	8300002.05	1	26	Moving Disk	8459025	1
11	Wire of Display Board	5512001	1	27	Fixed Disk	8469023	1
12	Main Board	6382057	1	28	Seal Ring	8370031	1
13	Dust Cover	8005002	1	29	Hexagonal Bolt Set	8902005	4
14	Wire Clip	8126007	1				
15	Power Wire	5513011	1	30	Connecting Board	8152033	1
16	Screw, Cross	8909013	1	31	Hexagonal Bolt	8909016	4

91240B Main Valve

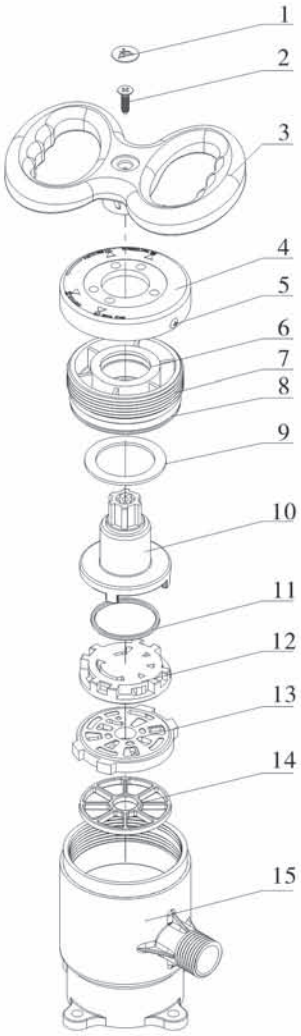


91240B Main Valve Components and Part No.

Item	Description	Part No.	Quantity	Item	Description	Part No.	Quantity
1	Air Pipeline Connector	5455001	1	32	Seal Ring	8371006	1
2	Seal Ring	8371011	2	33	Throat	8454023	1
3	Nut	8940005	1	34	O-ring	8378104	1
4	Washer	8952003	1	35	Hexagonal Bolt Set	5851005	4
5	Gasket	8156003	1	36	Valve Body	8008005	1
6	Valve Body	5022088	1	37	O-ring	8378113	1
7	O-ring	8378214	2	38	O-ring	8378162	2
8	Connector	8458104	2	39	Nut	8940007	1
9	Clip	8270017	2	40	Elbow Pipe	8457104	1
10	Animated Nut	8947036	2	41	Nut	8940006	1
11	O-ring	8378138	3	42	Seal Ring	8371001	1
12	Connector	8458024	2	43	Air Pipeline Connector	5455005	1
13	Hexagonal Bolt Set	5851009	1	44	Seal Ring	8371021	2
14	Hexagonal Nut	8940023	1	45	Filter Check Valve	3917005	1
15	Supporter	8109053	1	46	Air Pipeline	8465021	1
16	Hexagonal Bolt Set	5851001	4	47	Piston	5450003	3
17	Supporter	5156004	2	48	O-ring	8378263	4
18	Connector	8458021	3	49	Top Cover	8315064	4
19	O-ring	8378137	3	50	O-ring	8378031	4
20	Animated Nut	8947007	3	51	Plug	8232016	4
21	Connector	8458020	3	52	Hexagonal Bolt Set	5851006	4
22	O-ring	8378127	3	53	Seal Ring	8371009	8
23	Pressure Gauge	6342001	1	54	Pipe	8457075	1
24	Pressure Gauge Protect Valve	2976013	1	55	Piston	5450004	1
25	Plug	8323035	1	56	Corner Valve	3911004.05	1
26	O-ring	8378101	2	57	Pipe	8457025	2

27	Seal Ring	8371019	1	58	Hexagonal Nut	8940016	2
28	Manual Ball Valve	6922081	1	59	Air Pipeline	8465019	1
29	Manual Ball Valve	6922082	1	60	O-ring	8378125	1
30	Seal Ring	8371048	1	61	Flow Control	8468046	1
31	Connector	8458083	1				

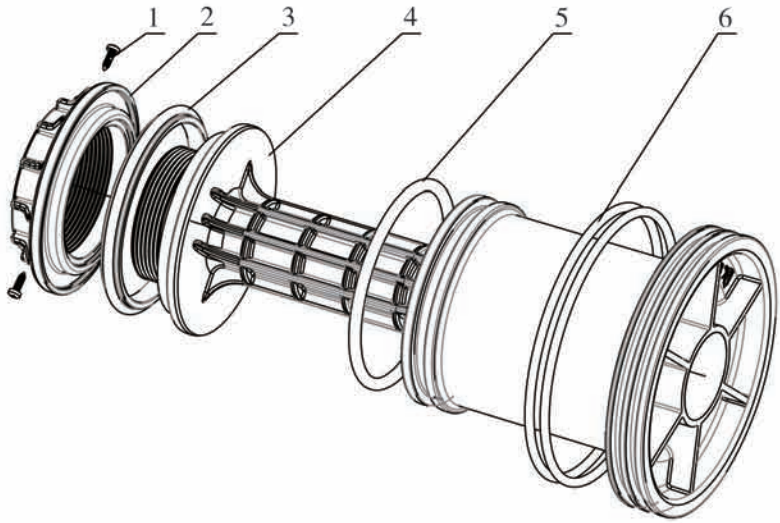
91240B Distribution Valve:



91240B Distribution Valve Components and Part No.

Item	Description	Part No.	Quantity	Item	Description	Part No.	Quantity
1	Label	8860001	1	9	Anti-friction Washer	8216010	1
2	Screw, Cross	8909014	1	10	Shaft	8258009	1
3	Manual Wheel	8253033	1	11	Seal Ring	8370053	1
4	Cover	8444022	1	12	Moving Disk	8459025	1
5	Screw, Cross	8909008	2	13	Fixed Disk	8469023	1
6	O-ring	8378078	1	14	Seal Ring	8370031	1
7	Fitting Nut	8092007	1	15	Distribution Valve Body	8022060	1
8	O-ring	8378107	1				

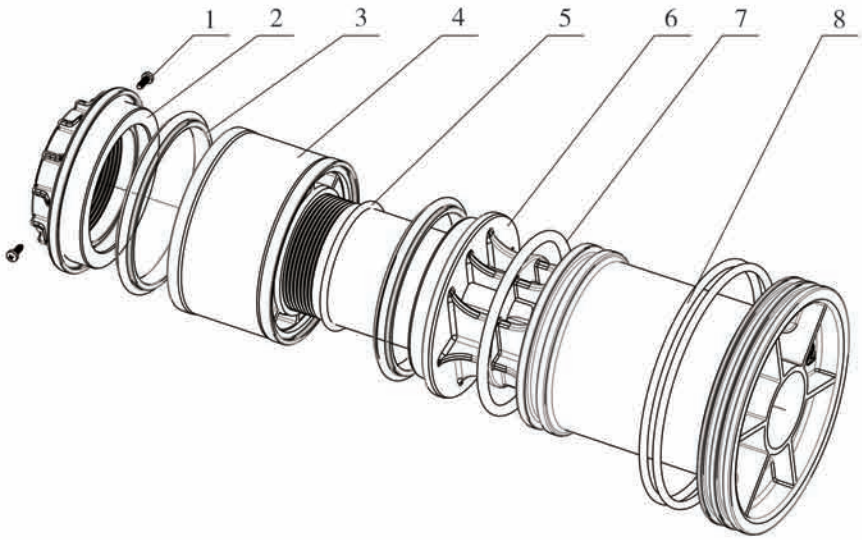
5450003 Piston structure:



5450003 Piston Components and Part No.

Item	Description	Part No.	Quantity	Item	Description	Part No.	Quantity
1	Screw, Cross	8909008	2	4	Piston	8450006	1
2	Fitting Nut	8092047	1	5	O-ring	8378262	1
3	Seal Ring	8370102	1	6	O-ring	8378263	2

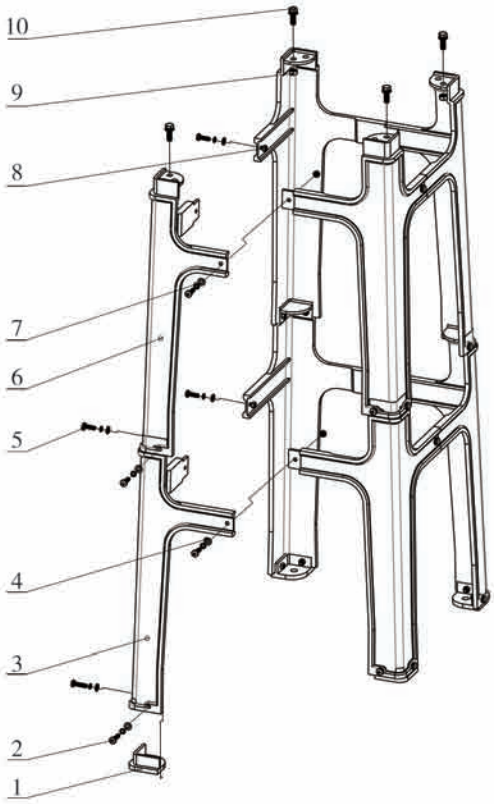
5450004 Piston structure:



5450004 Piston Components and Part No.

Item	Description	Part No.	Quantity	Item	Description	Part No.	Quantity
1	Screw, Cross	8909008	2	5	O-ring	8378184	1
2	Fitting Nut	8092048	1	6	Piston	8450007	1
3	Seal Ring	8370102	2	7	O-ring	8378262	1
4	Bushing	8210006	1	8	O-ring	8378263	1

5040009 Support structure:



5040009 Support components and part No.:

Item	Description	Part No.	Quantity	Item	Description	Part No.	Quantity
1	Foot Pad	8156002	4	6	Support	8040031	4
2	Screw, Cross M6X25	8902039	8	7	Spring Washer	8953001	24
3	Support	8040030	4	8	Hexagonal Nut	8940020	24
4	Washer	8952007	24	9	Hexagonal Nut	8940021	4
5	Screw, Cross M6X20	8902038	16	10	Hexagonal Bolt Set	5851002	4

4. Guarantee Card

Dear client:

This warranty card is the guarantee proof of RUNXIN brand multi-functional flow control valve. It is kept by client self. You could get the after-sales services from the supplier which is appointed by RUNXIN manufacturer. Please keep it properly. It couldn't be retrieved if lost.

It couldn't be repaired free of charge under the below conditions:

1. Guarantee period expired. (One year)
2. Damage resulting from using, maintenance, and keeping that are not in accordance with the instruction.
3. Damage resulting from repairing not by the appointed maintenance personnel.
4. Content in guarantee proof is unconfirmed with the label on the real good or be altered.
5. Damage resulting from force majeure.

Product Name	润新 RUNXIN **Multi-functional Flow Control Valve for Water Treatment Systems**				
Model			**Code of Valve Body**		
Purchase Company Name			**Tel/Cel.**		
Problem					
Solution					
Date of Repairing		**Date of Accomplishment**		**Maintenance Man Signature**	

When control valve need to send back for repair, please fill in the below content and sent this card together with the product to the appointed suppliers or RUNXIN company.

End-user Company Name		**Tel/Cel.**	
Purchase Company Name		**Tel/Cel.**	
Model		**Code of Valve Body**	
Tank Size ϕ ×	**Resin Tank Size** L	**Raw Water Hardness** mmol/L	
Water Source: Ground-water □ Tap Water □	**Water Treatment Capacity** m^3	**Settling Bed Time** min	
Brine & Drawing Time min	**Soak Time** min	**Slow Rinse Time** min	
Fast Rinse Time min	**Brine Refill Time** min		
Problem Description			

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