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Rev.A.2207



## Multi-functional Flow Control Valve for Water Treatment Systems

52502H (Old Model No.: F71D1)

52504H (Old Model No.: F67D1)

62502/62602 (Old Model No.: F65D1/D3)

62504/62604 (Old Model No.: F63D1/D3)

72502/72602 (Old Model No.: F69D1/D3)

72504/72604 (Old Model No.: F68D1/D3)

82602H/82602BH (Old Model No.: F79AD/BD)

82504H/82604H (Old Model No.: F82AD1/AD3)

82504BH/82604BH (Old Model No.: F82BD1/BD3)

## User Manual





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

0WRX.466.505

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

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

**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. (For example, F63D1, F63D3 should be set to F63; F68D1, F68D3 should be set to F68, etc. You couldn't set to other type)

When all symbols light on, press and hold  and  buttons for 5 seconds to enter the menu of language selection.

**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 Specifications 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 |
|---|----------------|-----------------|--------------|
| Water Treatment Capacity (Meter type)   | m <sup>3</sup> | 80              |              |
| Service Days (Time clock type, by days) | D.             | 03              |              |
| Regeneration Time                       | /              | 02:00           |              |
| Brine & Slow Rinse Time                 | min.           | 10              |              |
| Brine Refill Time                       | min.           | 60              |              |
| Fast Rinse Time                         | min.           | 05              |              |
| Backwash Time                           | min.           | 10              |              |
| Maximum Interval Regeneration Days      | D.             | 30              |              |

● If there is no special requirement when product purchase, we will use following as the standard configuration.

- F65D match with 6305 old injector, with 8468005(3#) DLFC;
- F65D match with 6804 new injector (5468241), with 8468061 DLFC;
- F69D match with 6305 old injector, with 8468005(3#) DLFC;
- F69D match with 6802 new injector (5468251), with 8468061 DLFC;
- F79D down-flow and up-flow match with 6305 old injector, with 8468005(3#) DLFC;
- F79D down-flow match with 6806 new injector (5468242), with 8468077 DLFC;
- F79D up-flow match with 6803 new injector (5468252); with 8468077 DLFC;
- F63D match with 6309 old injector, with 8468007(5#) DLFC;
- F63D match with 6809 new injector (5468245), with 8468063 DLFC;
- F68D match with 6309 old injector, with 8468007(5#) DLFC;
- F68D match with 6806 new injector (5468255), with 8468063 DLFC;
- F82D down-flow and up-flow match with 6309 old injector, with 8468007(5#) DLFC;
- F82D down-flow match with 6809 new injector (5468245), with 8468063 DLFC;
- F82D up-flow match with 6806 new injector (5468255), with 8468063 DLFC.

## Catalogue

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## 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 short 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.
- Sodium used in the water softening process should be considered as part your overall dietary salt intake. Contact doctor if you are on a low sodium diet.
- 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 crystalline coarse salt 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 vibrations environment. And do not leave it outside.
- Forbidden to carry the injector body. Avoid to use 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 0.15 ~ 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 is under 0.15MPa, a booster pump must be installed before the water inlet.
- It is suggested to install PPR pipe, corrugated pipe or UPVC pipe, instead of TTLSG pipe.
- Do not let children touch or play, because careless operations may cause the procedure changed.
- When the attached cables of this product and transformer are damaged, they must be changed to the one that is from our factory.

## 1. Product Overview

### 1.1. Main Application & Applicability

Used for softening or filtering water treatment systems

Be suitable for

Residential softening system

Residential filtering system

### 1.2. Product Characteristics

#### ● Simple structure and reliable sealing


It adopts hermetic head faces with high degree pottery and corrosion resistance for opening and closing. It combines with Service, Backwash, Brine & Slow Rinse, Brine Refill and Fast Rinse.

#### ● No water pass the valve in 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  will flash to remind people to reset new time of day. (Refer to the figure)



|                           |
|---------------------------|
| Set Time of Day<br>12 :30 |
|---------------------------|

#### ● LCD screen display

Adopt wordage to display all status, which is clear and briefly.

User can choose English or other language display interface in this way: Connecting power then press buttons  and  for more than 2 seconds to enter language choice interface.

#### ● Buttons lock

No operations to buttons on the controller within 1 minute, button lock indicator lights 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.

#### ● Disinfection connector ( Only for softener, and it needs to be separately equipped with a disinfection device)

The valve has the disinfection connector, which can supply DC5V/200mA power output in the Brine status. It can make a part of brine water electrolyzed, and produce hypochlorous acid to sterilize and disinfect the resin. (Wiring refers to P20)

#### ● Connector of salt shortage alarm (Only for softener, and it needs to be separately equipped with a gravity meter. )

The connector is jointed with gravity meter . When the brine tank is short of salt, the

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

system will give the alarm and remind user to add salt in time. (Wiring refers to P20)

●**Foreground mode and background mode can be selected.**

Foreground mode is suitable for user and only can set Time of Day, Regeneration Time, Washing Time, and Feed Water Hardness, etc. Background mode can set other parameters of regeneration time. (Setting refers to P26)

**1.3. Service Condition**

Runxin valve should be used under the below conditions:

| Items               |                         | Requirement  |
|---------------------|-------------------------|--|
| Working conditions  | Working pressure        | 0.15MPa ~ 0.6MPa   |
|                     | Water temperature       | 5°C ~ 50°C   |
| Working environment | Environment temperature | 5°C ~ 50°C   |
|                     | Relative humidity       | ≤95% (25°C)  |
|                     | Electrical facility     | AC100 ~ 240V/50 ~ 60Hz   |
| Inlet water quality | Water turbidity         | Down-flow regeneration <5FTU; Up-flow regeneration <2FTU Filter <20FTU |
|                     | Free chlorine           | < 0.1mg/L  |
|                     | Iron <sup>2+</sup>      | < 0.3mg/L  |

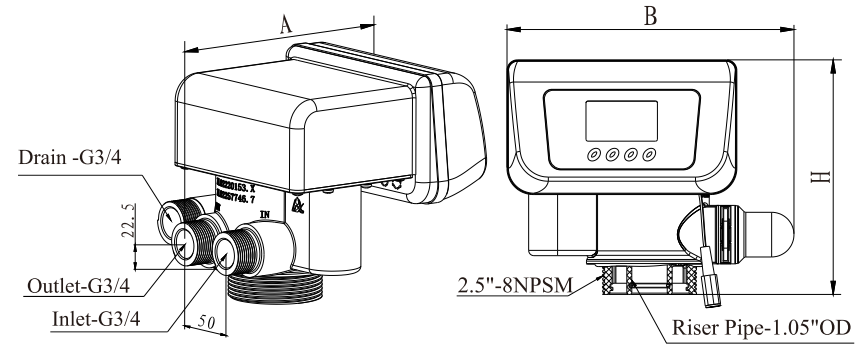
- When the water turbidity exceeds the conditions, a filter should be installed on the inlet of control valve.
- The requirement of free chlorine is only for softener but not filter.

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

**1.4. Product Structure and Technical Parameters**

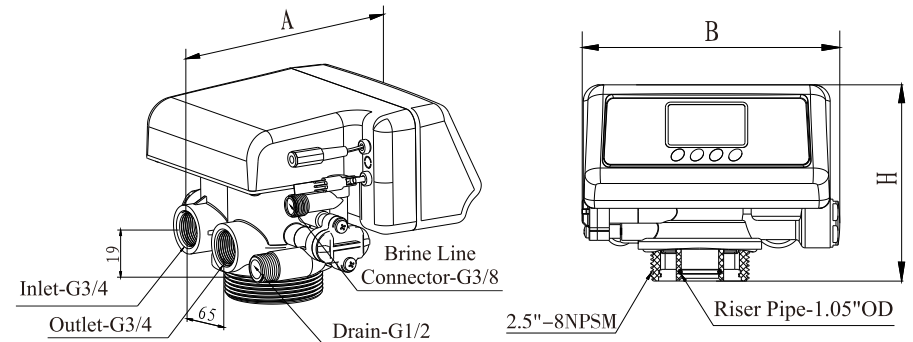
A. Product Dimension (The appearance is just for reference. It is subjected to the real product.)

F71D1(52502H) /F67D1(52504H)



| Model         | A(mm) max | B(mm) max | H(mm) max |
|---------------|-----------|-----------|-----------|
| F71D1(52502H) | 182.5     | 195.5     | 143       |
| F67D1(52504H) | 180       | 194       | 178.5     |

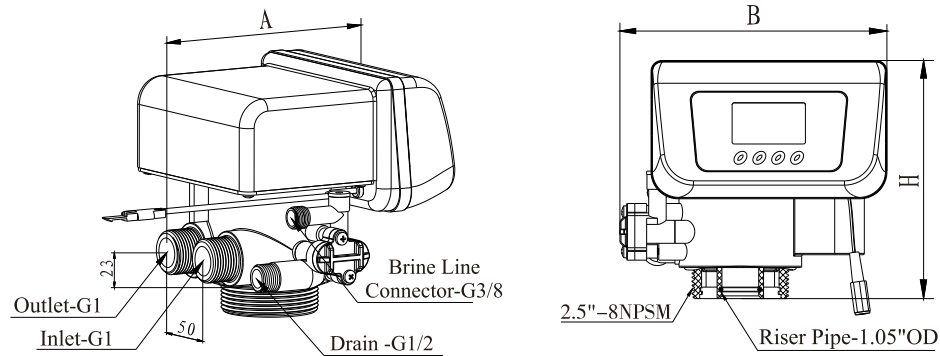
F65D1 (62502) /F69D1 (72502)



| Model        | A(mm) max | B(mm) max | H(mm) max |
|--------------|-----------|-----------|-----------|
| F65D1(62502) | 187.3     | 187.8     | 142.8     |
| F69D1(72502) | 196.4     | 187.8     | 152.8     |

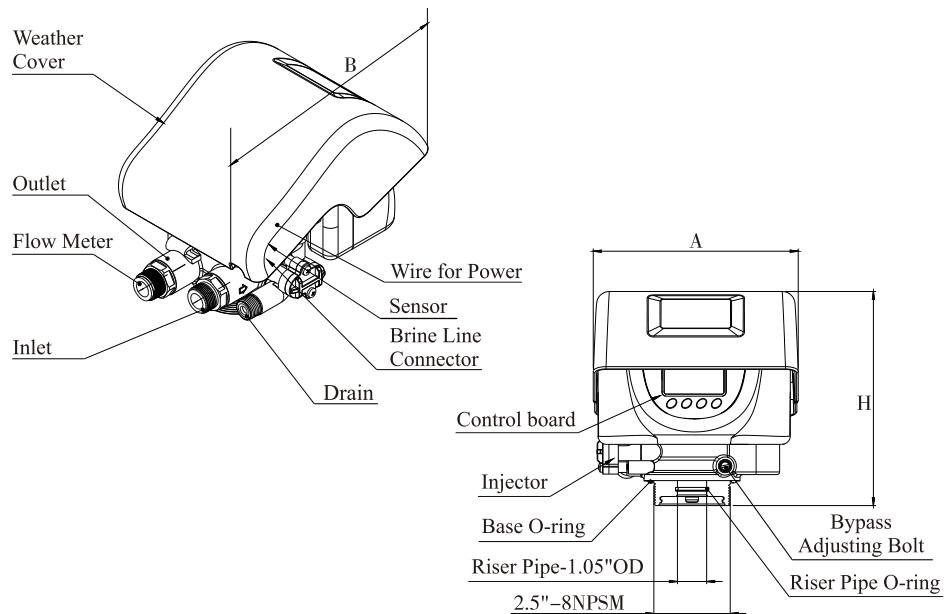
**MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D**

F63D1 (62504) /F68D1 (72504)



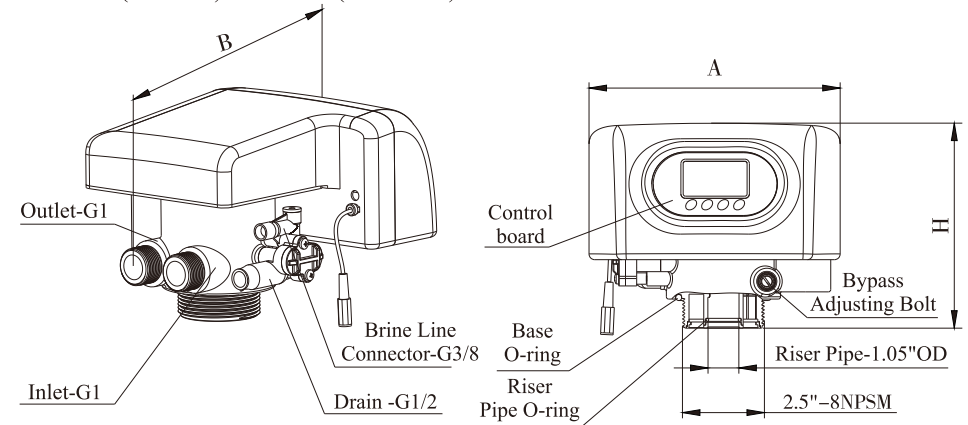
| Model         | A(mm) max | B(mm) max | H(mm) max |
|---------------|-----------|-----------|-----------|
| F63D1 (62504) | 282       | 198       | 177       |
| F68D1 (72504) | 282       | 198       | 176.5     |

F79AD (82602H) /F79BD (82602BH)



**MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D**

F82AD1 (82504H) /F82BD1 (82504BH)



| Model                          | A(mm)max | B(mm)max | H(mm)max | Remark                         |
|--------------------------------|----------|----------|----------|--------------------------------|
| F79AD/F79BD (82602H/82602BH)   | 186      | 230      | 170      | Opening Weather Cover Hmax=256 |
| F82AD1/F82BD1 (82504H/82504BH) | 220      | 260      | 180      | /                              |

**B. Technical Parameters**

Transformer Output: DC12V, 1.5A

| Model        | Connector Size |        |                      |             |                   | Water Capacity m <sup>3</sup> /h @0.3MPa | Remark             |
|--------------|----------------|--------|----------------------|-------------|-------------------|--|--------------------|
|              | Inlet/Outlet   | Drain  | Brine Line Connector | Base        | Riser Pipe        |  |                    |
| F71D (52502) | 3/4\"M         | 3/4\"M | /                    | 2.5\"-8NPSM | 1.05\"OD (26.7mm) | 2.0                                      | Filter             |
| F67D(52504)  | 1\"F           | 1\"F   | /                    |             |                   | 4.0                                      | Filter             |
| F65D(62502)  | 3/4\"F         | 1/2\"M | 3/8\"M               |             |                   | 2.0                                      | Down-flow          |
| F63D(62504)  | 1\"M           | 1/2\"M | 3/8\"M               |             |                   | 4.0                                      | Down-flow          |
| F69D(72502)  | 3/4\"F         | 1/2\"M | 3/8\"M               |             |                   | 2.0                                      | Up-flow            |
| F68D(72504)  | 1\"M           | 1/2\"M | 3/8\"M               |             |                   | 4.0                                      | Up-flow            |
| F79D(82602)  | 3/4\"M         | 1/2\"M | 3/8\"M               |             |                   | 2.0                                      | Down-flow /Up-flow |
| F82D(82604)  | 1\"M           | 1/2\"M | 3/8\"M               |             |                   | 4.0                                      | Down-flow /Up-flow |

**Note:** M—Male F—Female OD—Outer diameter

The above table only lists the time clock type. For the down-flow softener, or up-flow softener and meter type product, they have the same connector size as the time clock type.

### 1.5. Installation

(Take F63D3 for example)

#### 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 relevant pipeline regulations and the specification of Water Inlet, Water Outlet, Drain Outlet, and Brine Line Connector.

#### B. Device Location

- ①The filter or softener should be located close to drain.
- ②Ensure the unit is installed in enough space for operating and maintenance.
- ③Brine tank needs to be close to softener
- ④The unit should be kept away the heater, and not be exposed outdoors. Sunshine or rain will cause the system damage.
- ⑤Avoid installing the system in circumstance of acid/alkaline, magnetic or strong vibration, because above factors will cause the system disorder.
- ⑥Do not install the filter or softener, drain pipeline or overflow pipe in circumstance where temperature may drop below 5°C, or above 50°C.
- ⑦Install the system in the place where with the minimum loss in case of water leakage.

#### C. Pipeline Installation

##### ①Install control valve

- a. As the Figure 1-1 shows, select the riser pipe with 26.7mm OD, glue the riser pipe to the bottom strainer and put it into the resin tank, cut off the exceeding pipe out of tank top opening and make external rounding.
- b. Fill the resin to the tank, and the height is accordance with the design code.
- c. Install the top strainer to the valve.
- d. Through the top strainer, insert the riser pipe into control valve and screw control valve on the resin tank tightly.

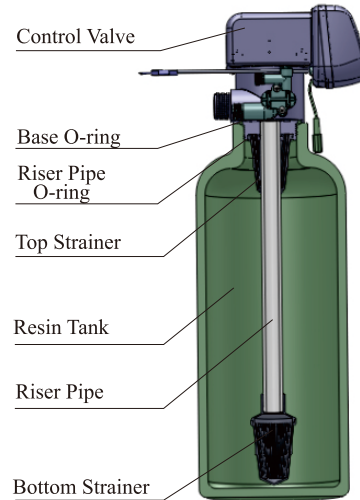


Figure 1-1

##### Note:

●The length of riser pipe should be neither 2mm higher nor 5mm lower than the tank top opening, and its top end should be rounded to avoid damaging of O-ring inside the valve.

- Avoid filling floccules substance together with resin to the resin tank.
- Avoid O-ring inside control valve falling out while rotating it on the tank.

##### ②Install animated connector

As Figure 1-2 shows, put the sealing ring into nut of animated connector, and screw in water inlet.

##### ③Install flow meter

As Figure 1-2 shows, put the sealing ring into nut of flow meter, screw in water outlet; insert the sensor into flow meter.

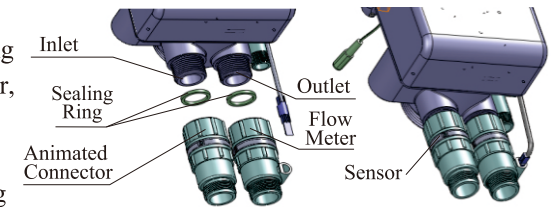


Figure 1-2

**Notice:** The position of flow meter and animated connector of F79 and F82 is opposite. For F79, the flow meter is on the left, and the animated is on the right.

##### ④Pipeline connection

- a. As Figure 1-3 shows, install a pressure gauge in water inlet.
- b. Install valve A, valve B, valve C and valve D in the inlet and outlet pipeline. The valve D is sampling valve. (Or adopt F70A/F70C bypass valve).
- c. Inlet pipeline should be in parallel with outlet pipeline. Support inlet and outlet pipeline with fixed holder.

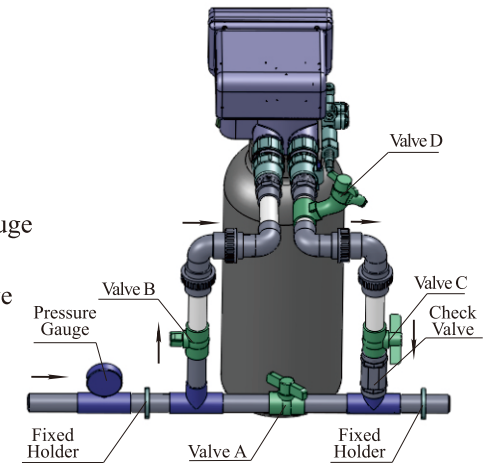


Figure 1-3

##### Note:

- If the water outlet or water tank is installed higher than control valve or parallel interlock system with multi-outlets, a liquid level controller must be installed in brine tank. Or else, the water in water outlet or water tank will flow backwards into brine tank when backwash.
- 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, do not use excessive force to make threads misaligned or broken valve.
- If the valve belongs to time clock type, there are no step ② and ③.

##### ⑤Install drain pipeline

- a. As the Figure 1-4 shows, slide the drain hose connector into drain outlet.
- b. Insert drain line flow control into drain outlet.
- c. Screw drain hose connector into drain outlet, and lock it.

d. Locate the drain hose well as the Figure 1-4 shows.

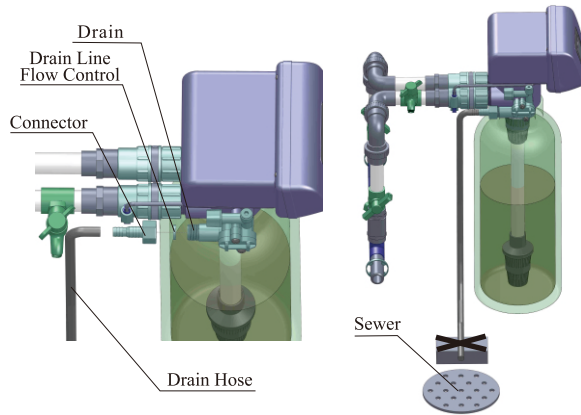


Figure 1-4

**Note:**

- Control valve should be higher than drain outlet, and be better not far from the drain hose.
- Be sure not to connect drain pipe with sewer directly, and leave a certain space between them, avoid wastewater being absorbed to the water treatment equipment.

⑥ Connect brine tube

- Slide 3/8" brine tube hose connector over end of brine tube.
- Insert tube bushing into the end of brine tube.
- Insert the red brine line flow control into valve brine line connector. (Note: cone side of control should face into valve)
- Tighten nut onto brine line connector.
- Connect the other end of brine tube with the brine tank.

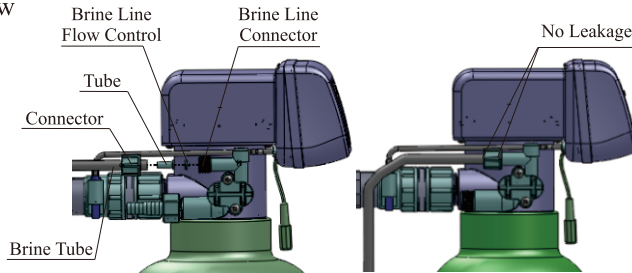


Figure 1-5

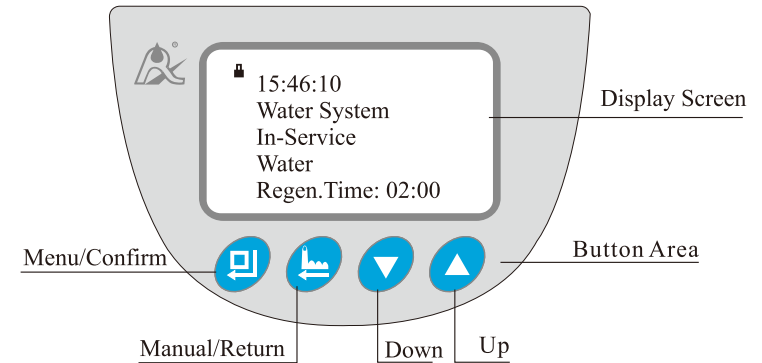
(The liquid level controller and brine valve with air-blocker should be installed in the brine tank.)

**Note:**

The brine tube and drain pipeline should not be bended or plugged; for the filter valve, there is only ①④⑤ steps.

## 2. Basic Setting & Usage

### 2.1. The Function and Meaning of PC Board



**A. Button Lock Indicator**

- lights on, indicates the buttons are locked. At this moment, pressing 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.

**B. Menu/Confirm Button**

- In menu mode, press , then enter program display mode to view all values.
- In program display mode, press , then enter program set mode, adjusting all values.
- Press after all program are set, and then the voice "Di" means all setting are success and return program display mode.

**C. Manual/Return Button**

- Press in any status, it can proceed to next step. (Example: After unlock the buttons, press in service status, it will start regeneration cycles instantly if the outlet water is unqualified; 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.

**D. Up and Down**

- 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 unlock the buttons.





2.2. Basic Setting & Usage

A.Parameter Specification

| Item              | Parameter Set Range | Factory Default | Instruction  |
|-------------------|---------------------|-----------------|--|
| Time of Day       | 00:00~23:59         | Current Value   | It's for all residential valve.  |
| Rinsing Time      | 00:00~23:59         | 02:00           | It's only for F67/F71 residential filter valve.                              |
| Regeneration Time | 00:00~23:59         | 02:00           | It's only for F63/F65/F68/F69/F79/F82 residential softener valve.            |
| Water Hardness    | 50~400mg/L          | 150mg/L         | It's only for F63/F65/F68/F69/F79/F82 meter type residential softener valve. |

Illustration:

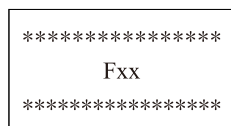
● In the display screen, F67/F71/F63/F65/F68/F69/F79/F82 is equal to F67D/F71D/F63D/F65D/F68D/F69D/F79D/F82D.

● Press and hold both  and  for more than 2 seconds after power on, then enter into the language selecting interface.

B.Process Display

① User mode

After power on, L1 will show 6 seconds, and then enter into user mode.



L1

② F67D/F71D process display

|   |  |  |                    |
|---|--|--|--------------------|
| 12:30:25<br>Water System<br>In-Service<br>Water<br>Remaining: 30 Days<br>Regen. Time: 02:00 | 02:08:00<br>Water System<br>Back Washing...<br>Remaining: 2 min. | 02:17:25<br>Water System<br>Fast Rinsing...<br>Remaining: 3 min. | Motor Running..... |
| Service Status  | Backwash Status  | Fast Rinse Statuses  | Motor Running      |

Illustration:

Working process of F67D/F71D: Service→ Backwash→ Fast Rinse→ Service (So circulate).

③ F63D1/F65D1/F68D1/F69D1/F79D1/F82D1 time clock type softener process display

|   |  |  |   |
|---|--|--|---|
| 12:30:25<br>Water System<br>In-Service<br>Water<br>Remaining: 30 Days<br>Regen. Time: 02:00 | 02:08:00<br>Water System<br>Back Washing...<br>Remaining: 2 min. | 02:40:25<br>Water System<br>Brine & Slow Rinse...<br>Up-flow<br>Remaining: 30 min. | 03:15:50<br>Water System<br>Brine Refilling...<br>Remaining: 05:00 min. |
|---|--|--|---|

Service Status      Backwash Status      Brine & Slow Rinse Status      Brine Refill Status

|  |                    |
|--|--------------------|
| 03:25:50<br>Water System<br>Fast Rinsing...<br>Remaining: 5 min. | Motor Running..... |
|--|--------------------|

Fast Rinse Status      Motor Running

Illustration:

● Under Brine& Slow Rinse status, for F63D1/F65D1, the display screen shows "Down-flow"; for F68D1/F69D1, it shows "Up-flow"; for F79D1/F82D1, it shows "Down-flow" or "Up-flow".

● Working process of F63D1/F65D1/F68D1/F69D1/F79D1/F82D1 time clock type softener: Service→ Backwash→ Brine & Slow Rinse→ Brine Refill →Fast Rinse→ Service (So circulate).

④ F63D3/F65D3/F68D3/F69D3/F79D3/F82D3 meter type softener process display

|  |   |  |  |
|--|---|--|--|
| 12:30:25<br>Water System<br>In-Service<br>Water<br>Remaining: 2.56m <sup>3</sup><br>Cur. F.R.: 3.65m <sup>3</sup> /h | 12:30:25<br>Water System<br>In-Service<br>Water<br>Regen. Time: 02:00 | 02:08:00<br>Water System<br>Back Washing...<br>Remaining: 2 min. | 02:40:25<br>Water System<br>Brine & Slow Rinse...<br>Up-flow<br>Remaining: 30 min. |
|--|---|--|--|

Service Status 1      Service Status 2      Backwash Status      Brine & Slow Rinse Status

|   |  |                    |
|---|--|--------------------|
| 03:15:50<br>Water System<br>Brine Refilling...<br>Remaining: 05:00 min. | 03:25:50<br>Water System<br>Fast Rinsing...<br>Remaining: 5 min. | Motor Running..... |
|---|--|--------------------|

Brine Refill Status      Fast Rinse Statuses      Motor Running

Illustration:


● Under brine status, for F63D3/F65D3, display screen shows "Down-flow"; for F68D3/F69D3, it shows "Up-flow"; For F79D3/F82D3, it shows "Down-flow" or "Up-flow".

● Working process of F63D3/F65D3/F68D3/F69D3/F79D3/F82D3 meter type softener: Service→Backwash→Brine& Slow Rinse→ Brine Refill →Fast Rinse→ Service (So circulate).

C. Basic Usage

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






















①Ensure 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 and iodized salt.

②When the outlet water hardness is too high, please press the  and the valve will temporary regenerate again.( It will not affect the original set operation cycle)





















③When the raw water hardness changes a lot, you can adjust the raw water hardness as below.( Refer to the third point of "User Setting")

**D.User Setting**

①F67D/F71D residential filter setting items and process

| Items         | Process Steps  | Symbol   |
|---------------|--|--|
| Time of Day   | <p>When  lights on, press and hold both  and  for 5 seconds until  lights off.</p> <p>1. Press  and enter into the interface of "Set Filter Para.", as the figure J1 shows. The item of "Set Time of Day" will be selected by system automatically.</p> <p>2. Then press , and the setting interface will display as the figure J2; the hour value "12" flashes, through  or  to adjust the hour value.</p> <p>3. Then press  again, the minute value "30" flashes, through  or  to adjust the minute value.</p> <p>4. Lastly, press  and hear a sound "Di", then finish adjustment.</p> | <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">                     Set Filter Para.<br/>                     » Set Time of Day<br/>                     Set Rinsing Time                 </div> <p style="text-align: center;">J1</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">                     Set Time of Day<br/>                     12:30                 </div> <p style="text-align: center;">J2</p> |
| Rin-sing Time | <p>1. Press  and enter into the interface of "Set Filter Para.", as the figure J1 shows.</p> <p>2. Press  and select the item of "Set Rinsing Time"; Then press , the setting interface will show as the figure J3; the hour value 02 flashes, through  or  to adjust the hour value.</p> <p>3. Then press , the minute value "00" flashes, through  or  to adjust the minute value.</p> <p>4. Lastly, press  and hear a sound "Di", then finish adjustment.</p>  | <div style="border: 1px solid black; padding: 5px;">                     Set Filter Para.<br/>                     Set Time of Day<br/>                     » Set Rinsing Time                 </div> <p style="text-align: center;">J3</p>  |

②F63D1/F65D1/F68D1/F69D1/F79D1/F82D1 time clock type residential softener setting items and process

| Items              | Process Steps   | Symbol  |
|--------------------|---|---|
| Time of Day        | <p>When  lights on, press and hold  and for 5 seconds until the  lights off.</p> <p>1. Press  and enter into the interface of "Set Softener Para.", as the figure SR1 shows. The item of "Set Time of Day" will be selected by system automatically.</p> <p>2. Then press the , and the setting interface will display as the figure SR2; the hour value "12" flashes, through  or  to adjust the hour value.</p> <p>3. Then press  again, the minute value "30" flashes, through  or  to adjust the minute value.</p> <p>4. Lastly, press  and hear a sound "Di", then finish adjustment.</p> | <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">                     Set Softener Para.<br/>                     » Set Time of Day<br/>                     Set Regen. Time                 </div> <p style="text-align: center;">SR1</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">                     Set Time of Day<br/>                     12:30                 </div> <p style="text-align: center;">SR2</p> |
| Reg-eneration Time | <p>1. Press  and enter into the interface of "Set Softener Para", as the figure SR1 shows.</p> <p>2. Press  and select the item of "Set Regen. Time"; then press , the setting interface will display as the figure SR3; hour value "02" flashes, through  or  to adjust the hour value.</p> <p>3. Then press , the minute value "00" flashes, through  or  to adjust the minute value.</p> <p>4. Lastly, press  and hear a sound "Di", then finish adjustment.</p>   | <div style="border: 1px solid black; padding: 5px;">                     Set Regen. Time<br/>                     02:00                 </div> <p style="text-align: center;">SR3</p>   |

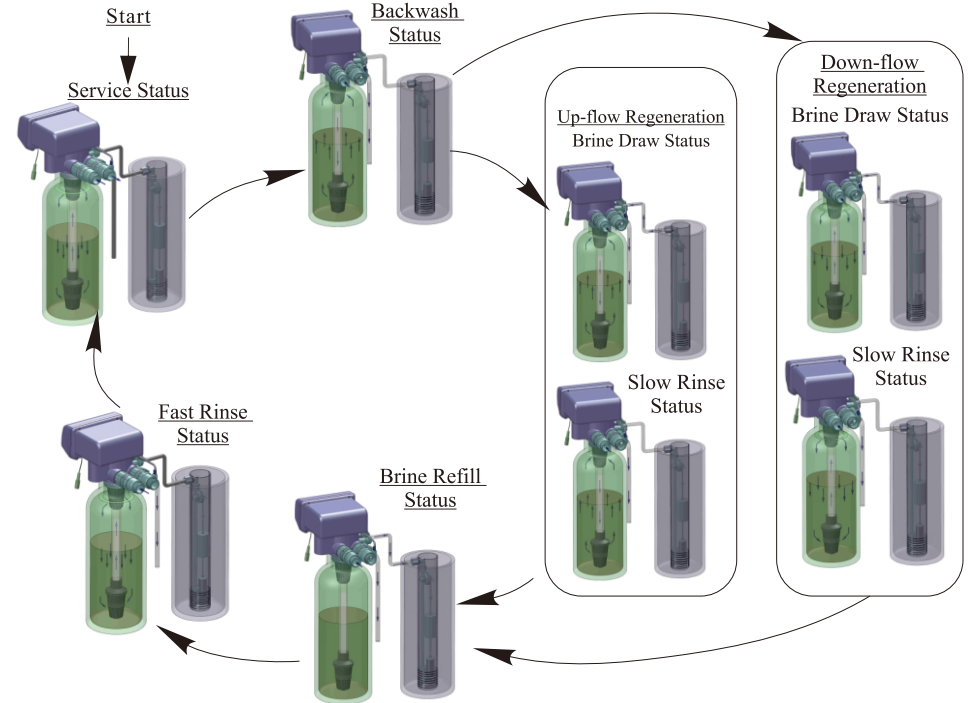
③F63D3/F65D3/F68D3/F69D3/F79D3/F82D3 meter type residential softener setting items and process

| Items             | Process Steps   | Symbol  |
|-------------------|---|---|
| Time of Day       | <p>When  lights on, press and hold  and  for 5 seconds until the  lights off.</p> <p>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.</p> <p>2. Then press the , and the setting interface will display as the figure LR2; the hour value "12" flashes, through  or  to adjust the hour value.</p> <p>3. Then press  again, the minute value "30" flashes, through  or  to adjust the minute value.</p> <p>4. Lastly, press  and hear a sound "Di", then finish adjustment.</p> | <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">                     Set Softener Para.<br/>                     » Set Time of Day<br/>                     Set Regen. Time<br/>                     Set Water Hardness                 </div> <p style="text-align: center;">LR1</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">                     Set Time of Day<br/>                     12:30                 </div> <p style="text-align: center;">LR2</p> |
| Regeneration Time | <p>1. Press  and enter into the interface of "Set Softener Para.", as the figure LR1 shows.</p> <p>2. Press  and select the item of "Set Regen. Time"; then press , the setting interface will display as the figure LR3; hour value "02" flashes, through  or  to adjust the hour value.</p> <p>3. Then press , the minute value "00" flashes, through  or  to adjust the minute value.</p> <p>4. Lastly, press  and hear a sound "Di", then finish adjustment.</p>  | <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">                     Set Regen. Time<br/>                     02:00                 </div> <p style="text-align: center;">LR3</p>  |
| Water Hardness    | <p>1. Press  and enter into the interface of "Set Softener Para.", as the figure LR1 shows.</p> <p>2. Press  twice and select the item of "Set Water Hardness"; then press , the setting interface will display as the figure LR4; hardness value "150" flashes, through  or  to adjust the hardness value.</p> <p>3. Lastly, press  and hear a sound "Di", then finish adjustment.</p>   | <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">                     Set Water Hardness<br/>                     150mg/L                 </div> <p style="text-align: center;">LR4</p>   |

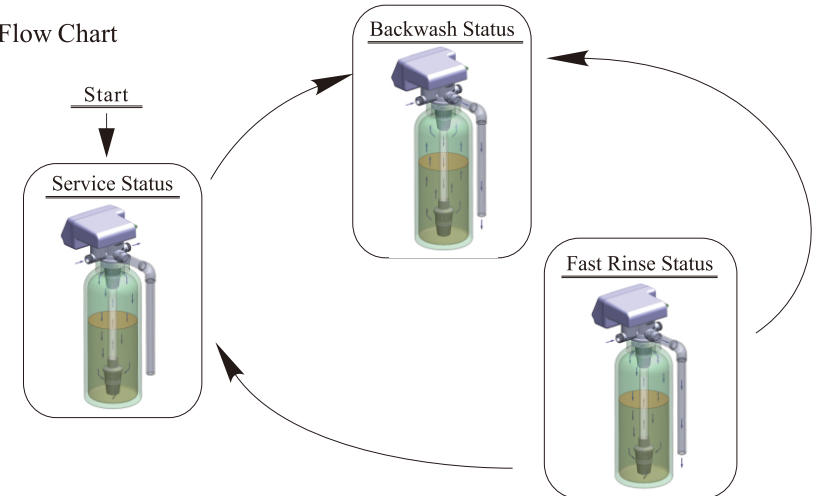
### 3. Applications

#### 3.1. Flow Chart

##### A. Softener Flow Chart

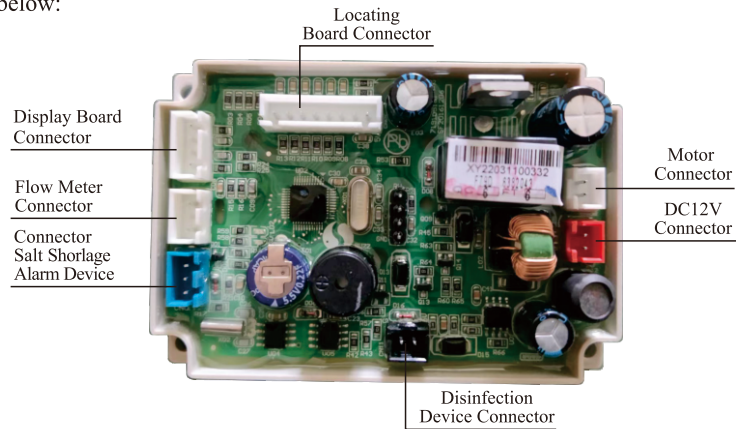


##### B. Filter Flow Chart



**3.2. The Function and Connection of PC Board**

Open the front cover of control valve, you will see the main control board and connection connectors as below:



| Function                         | Application   | Explanation  |
|----------------------------------|---|--|
| Disinfection Connector           | It is used for disinfecting resin when softener in regeneration.      | Under the brine & slow rinse status, it can make a part of brine electrolyzed, and produce hypochlorous acid to sterilize and disinfect the resin. |
| Connector of Salt Shortage Alarm | It is used for checking whether the salt is enough in the brine tank. | When the brine tank is short of salt, the system will give the alarm and remind user to add the salt in time.                                      |

**A. Disinfection Device Connector**

If it is need to connect with disinfection device, the ground electrode of the disinfection device and positive power should be connected to the "GND" and "+5V" separately in the CN4 plug. The wiring refers to the Figure 1.

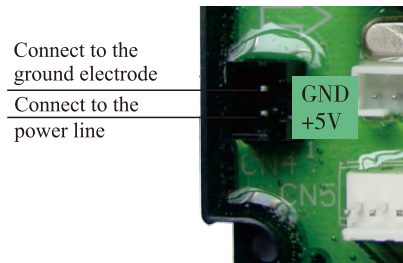


Figure 1

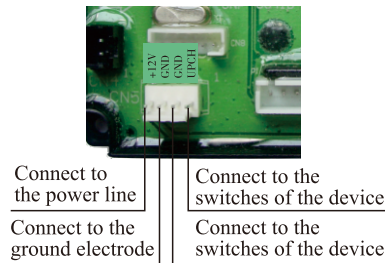


Figure 2

**B. Salt Shortage Alarm Device**

If it is need to connect with salt shortage alarm device, the ground electrode of the salt shortage alarm device and positive power should be connected to the "GND" and "+12V"

separately in the CN5 plug. The switches of the device should be connected to the "GND" and "UPCH" separately. The wiring refers to the Figure 2.

**3.3. System Configuration and Flow Rate Characteristics**

**A. Product Configuration**

1) Softener valve 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) |
|----------------|------------------|-----------------|----------------------|--|
| φ 180 × 1130   | 16               | 0.5             | φ 250 × 520          | 2.40   |
| φ 205 × 1300   | 25               | 0.7             | φ 390 × 810          | 4.00   |
| φ 255 × 1390   | 40               | 1.2             | φ 390 × 810          | 6.00   |
| φ 300 × 1650   | 60               | 1.8             | φ 450 × 940          | 9.00   |
| φ 355 × 1650   | 100              | 2.5             | φ 500 × 1060         | 15.00  |
| φ 400 × 1650   | 120              | 3.5             | φ 550 × 1160         | 18.00  |
| φ 450 × 1650   | 150              | 4.5             | φ 550 × 1160         | 22.50  |

**Note:** The flow rate calculation is based on linear velocity 25m/hr; the minimum salt consumption for regeneration calculation is based on salt consumption 150g / L (Resin).

2) Filter valve configuration with tank, resin volume, brine tank and injector

| Tank Size (mm) | Volume of Filter Material (L) | Carbon Filter                           |  | Sand Filter                             |  |
|----------------|-------------------------------|---|--|---|--|
|                |                               | Filtering Flow Rate (m <sup>3</sup> /h) | Backwash Flow Rate (m <sup>3</sup> /h) | Filtering Flow Rate (m <sup>3</sup> /h) | Backwash Flow Rate (m <sup>3</sup> /h) |
| mm             | L                             | m <sup>3</sup> /h                       | m <sup>3</sup> /h                      | m <sup>3</sup> /h                       | m <sup>3</sup> /h                      |
| φ 180 × 1130   | 16                            | 0.3                                     | 0.9                                    | 0.6                                     | 1.3                                    |
| φ 205 × 1300   | 25                            | 0.4                                     | 1.1                                    | 0.8                                     | 1.7                                    |
| φ 255 × 1390   | 40                            | 0.6                                     | 1.7                                    | 1.2                                     | 2.6                                    |
| φ 300 × 1390   | 60                            | 0.8                                     | 2.5                                    | 1.7                                     | 3.8                                    |
| φ 355 × 1650   | 100                           | 1.2                                     | 3.4                                    | 2.4                                     | 5.2                                    |
| φ 400 × 1650   | 120                           | 1.5                                     | 4.5                                    | 3.1                                     | 6.8                                    |

**Note:** The filtering flow rate of carbon filter is calculated based on the 12m/h operation rate; the backwash flow rate is calculated based on the 10L/(m<sup>2</sup>\*s) backwash intensity; the filtering flow rate of sand filter is calculated based on the 25m/h operation rate; the backwash flow rate is calculated based on the 15L/(m<sup>2</sup>\*s) backwash intensity.

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

**B. Flow Rate Characteristic**

1). Old injector parameter table

| Inlet Pressure | Draw Rate (L/M) |           |             |           |            |            |             |          |            |             |
|----------------|-----------------|-----------|-------------|-----------|------------|------------|-------------|----------|------------|-------------|
|                | 6301 Coffee     | 6302 Pink | 6303 Yellow | 6304 Blue | 6305 White | 6306 Black | 6307 Purple | 6308 Red | 6309 Green | 6310 Orange |
| 0.15           | 0.81            | 1.12      | 1.58        | 2.21      | 2.45       | 3.30       | 3.44        | 4.08     | 5.19       | 5.69        |
| 0.20           | 0.95            | 1.41      | 1.87        | 2.53      | 2.89       | 3.88       | 4.21        | 4.83     | 5.36       | 6.80        |
| 0.25           | 0.99            | 1.61      | 2.08        | 2.79      | 3.30       | 4.30       | 4.66        | 5.39     | 6.86       | 7.65        |
| 0.30           | 1.30            | 1.81      | 2.18        | 3.05      | 3.66       | 4.74       | 5.15        | 5.95     | 7.50       | 8.60        |
| 0.35           | 1.45            | 1.96      | 2.39        | 3.27      | 3.94       | 5.02       | 5.55        | 6.51     | 8.30       | 9.57        |
| 0.40           | 1.56            | 2.12      | 2.55        | 3.50      | 4.25       | 5.41       | 5.88        | 6.77     | 8.74       | 9.90        |

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

| Tank Dia. (mm) | Injector Model | Injector Color | Draw Rate | Slow Rinse Rate | Brine Refill Rate | DLFC | Backwash / Fast Rinse Rate |
|----------------|----------------|----------------|-----------|-----------------|-------------------|------|----------------------------|
|                |                |                | L/m       | L/m             | L/m               |      | L/m                        |
| 150            | 6301           | Coffee         | 1.30      | 0.91            | 3.00              | 1#   | 4.70                       |
| 175            | 6302           | Pink           | 1.81      | 1.32            | 3.70              | 1#   | 4.70                       |
| 200            | 6303           | Yellow         | 2.18      | 1.73            | 3.80              | 2#   | 8.00                       |
| 225            | 6304           | Blue           | 3.05      | 2.14            | 3.30              | 2#   | 8.00                       |
| 250            | 6305           | White          | 3.66      | 2.81            | 4.30              | 3#   | 14.40                      |
| 300            | 6306           | Black          | 4.74      | 3.32            | 4.20              | 3#   | 14.40                      |
| 325            | 6307           | Purple         | 5.15      | 3.55            | 4.10              | 4#   | 22.80                      |
| 350            | 6308           | Red            | 5.95      | 4.00            | 4.00              | 4#   | 22.80                      |
| 400            | 6309           | Green          | 7.50      | 5.13            | 4.00              | 5#   | 26.40                      |
| 450            | 6310           | Orange         | 8.60      | 5.98            | 3.90              | 5#   | 26.40                      |

**Note:** The above data for the product configuration and relevant characteristics are only for reference. When put in practice, please subject to the different requirements of raw water hardness and application.

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

3). New injector parameter table

| Inlet Pressure | Draw Rate/Slow Rinse Rate (L/M) |            |             |            |             |            |            |            |             |            |            |             |
|----------------|---------------------------------|------------|-------------|------------|-------------|------------|------------|------------|-------------|------------|------------|-------------|
|                | 6820 Grey                       | 6821 Cyan  | 6801 Coffee | 6802 Pink  | 6803 Yellow | 6804 Blue  | 6805 White | 6806 Black | 6807 Purple | 6808 Red   | 6809 Green | 6810 Orange |
| 0.15           | 0.61 /0.48                      | 0.88 /0.63 | 1.30 /0.76  | 1.45 /1.17 | 2.00 /1.65  | 2.68 /2.28 | 2.72 /2.67 | 3.72 /3.11 | 4.52 /3.55  | 4.85 /3.86 | 5.75 /4.71 | 6.00 /4.78  |
| 0.20           | 0.70 /0.56                      | 1.03 /0.74 | 1.52 /0.87  | 1.73 /1.38 | 2.37 /1.84  | 3.16 /2.54 | 3.27 /2.93 | 4.27 /3.40 | 5.03 /3.81  | 5.70 /4.25 | 6.40 /5.15 | 6.26 /5.41  |
| 0.25           | 0.79 /0.60                      | 1.14 /0.83 | 1.77 /0.98  | 1.90 /1.47 | 2.70 /1.97  | 3.46 /2.71 | 3.78 /3.13 | 4.80 /3.68 | 5.65 /4.11  | 6.22 /4.61 | 7.19 /5.57 | 7.13 /5.89  |
| 0.30           | 0.87 /0.65                      | 1.27 /0.91 | 1.93 /1.06  | 2.26 /1.56 | 3.00 /2.12  | 3.80 /2.91 | 4.30 /3.39 | 5.23 /3.93 | 6.20 /4.43  | 6.80 /4.88 | 7.97 /6.00 | 8.53 /6.51  |
| 0.35           | 0.95 /0.72                      | 1.35 /0.99 | 2.08 /1.12  | 2.20 /1.67 | 3.23 /2.23  | 4.05 /3.09 | 4.50 /3.62 | 5.57 /4.17 | 6.67 /4.71  | 7.27 /5.16 | 8.50 /6.27 | 8.80 /6.97  |
| 0.40           | 1.00 /0.77                      | 1.43 /1.05 | 2.23 /1.14  | 2.27 /1.75 | 3.46 /2.35  | 4.38 /3.24 | 4.88 /3.78 | 5.95 /4.35 | 6.95 /4.99  | 7.63 /5.41 | 8.80 /6.66 | 9.30 /7.28  |

4). Configuration for standard new injector and drain line flow control

| Tank Dia. (mm) | Regeneration Way | Injector Code | Nozzle / Throat Type | Nozzle / Throat / Plug Color | BLFC Code |   | DLFC Code |
|----------------|------------------|---------------|----------------------|------------------------------|-----------|---|-----------|
|                |                  |               |                      |                              | Standard  | Optional                                    |           |
| 150            | Down-flow        | 5468237       | 6821                 | Cyan                         | 8468057   | 8468076, 8468075                            | 8468064   |
|                | Up-flow          | 5468247       | 6820                 | Grey                         |           |   |           |
| 175            | Down-flow        | 5468238       | 6801                 | Coffee                       | 8468057   | 8468076, 8468075                            | 8468043   |
|                | Up-flow          | 5468248       | 6821                 | Cyan                         |           |   |           |
| 200            | Down-flow        | 5468239       | 6802                 | Pink                         | 8468056   | 8468076, 8468075, 8468057                   | 8468042   |
|                | Up-flow          | 5468249       | 6821                 | Cyan                         |           |   |           |
| 225            | Down-flow        | 5468240       | 6803                 | Yellow                       | 8468056   | 8468076, 8468075, 8468057                   | 8468060   |
|                | Up-flow          | 5468250       | 6801                 | Coffee                       |           |   |           |
| 250            | Down-flow        | 5468241       | 6804                 | Blue                         | 8468052   | 8468076, 8468075, 8468057, 8468056          | 8468061   |
|                | Up-flow          | 5468251       | 6802                 | Pink                         |           |   |           |
| 300            | Down-flow        | 5468242       | 6806                 | Black                        | 8468053   | 8468076, 8468075, 8468057, 8468056, 8468052 | 8468077   |
|                | Up-flow          | 5468252       | 6803                 | Yellow                       |           |   |           |
| 325            | Down-flow        | 5468243       | 6807                 | Purple                       | 8468053   | 8468076, 8468075, 8468057, 8468056, 8468052 | 8468044   |
|                | Up-flow          | 5468253       | 6804                 | Blue                         |           |   |           |

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

|     |           |         |      |        |         |  |                 |
|-----|-----------|---------|------|--------|---------|--|-----------------|
| 350 | Down-flow | 5468244 | 6808 | Red    | 8468054 | 8468076, 8468075,<br>8468057, 8468056,<br>8468052, 8468053             | 8468062         |
|     | Up-flow   | 5468254 | 6805 | White  |         |  |                 |
| 400 | Down-flow | 5468245 | 6809 | Green  | 8468055 | 8468076, 8468075,<br>8468057, 8468056,<br>8468052, 8468053,<br>8468054 | 8468063         |
|     | Up-flow   | 5468255 | 6806 | Black  |         |  |                 |
| 450 | Down-flow | 5468246 | 6810 | Orange | 8468055 | 8468076, 8468075,<br>8468057, 8468056,<br>8468052, 8468053,<br>8468054 | Without<br>DLFC |
|     | Up-flow   | 5468256 | 6807 | Purple |         |  |                 |

**Note:** The above configuration is suitable for industrial use. The actual configuration should be based on different raw water hardness and different water requirements. If it is used for civil and household purposes, considering the small height diameter ratio of resin bed, the optimal configuration should be selected after experimental verification, and it is recommended to use a smaller salt absorption regeneration flow rate (1~2m/h).

5). BLFC parameter table (Only for new injector)

|             |         |         |         |         |         |         |         |         |      |
|-------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
| Part Number | 8468076 | 8468075 | 8468057 | 8468056 | 8468052 | 8468053 | 8468054 | 8468055 |      |
| Color       | Red     | Purple  | Black   | White   | Coffee  | Pink    | Yellow  | Blue    |      |
| Flow Rate   | L/m     | 0.38    | 0.68    | 0.98    | 1.21    | 1.66    | 2.73    | 4.92    | 5.86 |
|             | gal/min | 0.10    | 0.18    | 0.26    | 0.32    | 0.44    | 0.72    | 1.30    | 1.55 |

6). DLFC parameter table (Only for new injector)

|             |         |         |         |         |         |         |         |         |         |         |         |       |
|-------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|
| Part Number | 8468064 | 8468043 | 8468042 | 8468060 | 8468061 | 8468045 | 8468077 | 8468044 | 8468062 | 8468063 | No DLFC |       |
| Color       | Green   | Pink    | Coffee  | White   | Black   | Blue    | Orange  | Yellow  | Purple  | Red     | /       |       |
| Flow Rate   | L/m     | 3.33    | 4.31    | 7.15    | 7.64    | 10.82   | 15.96   | 18.1    | 18.5    | 24.97   | 30.64   | 32.00 |
|             | gal/min | 0.88    | 1.14    | 1.89    | 2.02    | 2.86    | 4.22    | 4.78    | 4.89    | 6.6     | 8.1     | 8.45  |

**Note:** The above configuration for the product and relevant characteristics are only for reference. When put in practice, it is subject to the different requirements of raw water hardness and application.

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

**3.4. Parameter Settlement**

① 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. (Only for meter type)

② Water treatment capacity  $Q = V_R \times E / (Y_D \times k)$

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

$E$ —Resin working exchange capability ( $mol/m^3$ )

$Y_d$ —Hardness of inlet water ( $mol/m^3$ )

$k$ —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.

③ Backwash time: Generally, it is suggested to be set 10~15 minutes. The higher the turbidity is, the longer backwash time can be set. However, if the turbidity is more than 5FTU, it should be better to install a filter in front of the exchanger.

④ Brine & Slow rinse time = Brine draw time + Slow rinse time (Slow rinse time is also called replacement time)

a) Brine draw time =  $60 \times V_z / (S \times v)$  (min)

$V_z = M_{cz} / (C \times \rho \times 103)$  ( $m^3$ )

In this formula,  $V_z$ —The volume of regeneration liquid,  $m^3$

$S$ —The sectional area of exchanger,  $m^2$

$v$ —The rate of regeneration liquid,  $m/h$

$M_{cz}$ —The dosage of 100% pure reagent for once regeneration,  $kg$

$C$ —The concentration of regeneration liquid, %

$\rho$ —The density of regeneration liquid

$M_{cz} = V_R E k M / (\varepsilon \times 1000)$  ( $kg$ )

In this formula,  $V_R$ —Resin volume,  $m^3$

$E$ —Resin working exchange capability,  $mol/m^3$

$k$ —The proportional consumption of reagent for down-flow regeneration,  $k$  takes 2 ~ 3.5; for up-flow regeneration,  $k$  takes 1.2 ~ 1.8

$M$ —The reagent molar mass, NaCl is 58.5

$\varepsilon$ —The purity of reagent; usually, the purity of NaCl in salt is 95%~98%

b) Slow rinse time = Slow rinse volume / Slow rinse rate (minute)

Generally, the volume for slow rinse is 0.5~1 time as much as the resin volume.

⑤ Brine refill time = Brine refill volume / Brine refill rate (minute)

The brine refill volume is equal to the total salt solution consumption for regeneration. Different inlet water pressure can make different brine refill speed. 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)

⑥ Fast rinse time= Fast rinse volume/ Fast rinse rate (minute)

Generally, the water for fast rinse is 3~6 times of resin volume. It is suggested to be set 10~12 minutes, but subject to the outlet water reaching the requirement.

⑦Set up interval backwash times (Only for F68, F69, and up-flow of F79, F82)



When the turbidity of raw water is higher, the interval backwash time could be set F-00. That is, backwash in each regeneration; when the turbidity is lower, the interval backwash time could be set F-01(Or other number value), it is to say that backwash in every two regeneration. Thus, Service→ Brine & Slow rinse →Brine refill→ Fast rinse→ Service→ Backwash →Brine & Slow rinse →Brine refill →Fast rinse.

**Note:** Among the above, the slow rinse rate, brine refill rate and fast rinse rate can be obtained according to the selected model of injector, refer to this manual (Table 2)

The above calculation of parameters for each step is only for reference.

**3.5. Background Parameter Inquiry and Setting**

**A. Enter into Background Mode**

Within 6 seconds of the L1, L2 displaying, press and hold  and  for more than 2 seconds to enter the background setting menu. The interface as the H1 shows (Including H1-1, H1-2, and H1-3) .






**B. Background Setting Parameters**






Under the background mode, you can set the parameters as below:






Mode, Valve Type, Control Type, Resin Volume, Interval Regeneration Days, Backwash Time, Brine & Slow Rinse Time, Brine Refill Time, Fast Rinse Time, Service Time, Brine Draw Type, etc.






|  |   |   |                         |  |  |
|--|---|---|-------------------------|--|--|
| » Set Mode-softener<br>Set Valve Model-F79<br>Set Type-meter type<br>Set Resin Volume-8L ↓ |   | » Set Brine D. Type-up flow<br>Interval Regen. D.-30D.<br>Set Backwash Time-2min.<br>Set B.S.R.Time. -30min.↓ |                         | » Set Backwash Time-2min.<br>Set B.S.R.Time. -30min<br>Set B.R. Time-5min.<br>Set F.R. Time-3min.↓ |  |
| H1-1   |   | H1-2  |                         | H1-3   |  |
| Set Mode<br><input type="radio"/> Filter<br><input checked="" type="radio"/> Softener      | Set Valve Model<br><input type="radio"/> F69 ↑<br><input type="radio"/> F82<br><input checked="" type="radio"/> F79 | Set Type<br><input type="radio"/> Time Clock Type<br><input checked="" type="radio"/> Meter Type              | Set Resin Volume<br>08L |  |  |
| A1   | A2  | A3  | A4                      |  |  |






|  |                               |  |                             |
|--|-------------------------------|--|-----------------------------|
| Set Brine D. Type<br><input checked="" type="radio"/> Up-Flow<br><input type="radio"/> Down-Flow | Interval Regen. D.<br>30 days | Set Backwash Time<br>2 min.  | Set B. S. R. T.<br>30 min.  |
| A5   | A6                            | A7   | A8                          |
| Set B. R.Time<br>05:00 min.  | Set F. R. Time<br>03 min.     | Set Valve Model<br><input checked="" type="radio"/> F71<br><input type="radio"/> F67 | Set Service Days<br>30 days |
| A9   | A10                           | A11  | A12                         |






①In the H1 interface, select the "Set Mode" and press "", as the figure A1 shows. Press " " or " " to select the mode that you need. After that, Press " " to save the setting and turn back to H1; or press " " to turn back to H1 without saving the setting.

②In the H1 interface, select "Set Valve Model" and press "", as the figure A2 shows. Press " " or " " to select the matched valve model. Press " " to save the setting and turn back to H1; or press " " to turn back to H1 without saving the setting.

③In the H1 interface, select "Set Type" and press "", as the figure A3 shows. Press " " or " " to select the control type that you need. Press " " to save the setting and turn back to H1; or press " " to turn back to H1 without saving the setting.

④In the H1 interface, select "Set Resin Volume" and press "", as the figure A4 shows. Press " " or " " to select the matched resin volume. Press " " to save the setting and turn back to H1; or press " " to turn back to H1 without saving the setting.

⑤In the H1 interface, select "Set Brine D.Type" and press "", as the figure A5 shows. Press " " or " " to select the brine draw type that you need. Press " " to save the setting and turn back to H1; or press " " to turn back to H1 without saving the setting. ( This item is only for F79 and F82 product)

⑥In the H1 interface, select "Interval Regen. D." and press "", as the figure A6 shows. Press " " or " " to select the interval regeneration day that you need. Press " " to save the setting and turn back to H1; or press " " to turn back to H1 without saving the setting.

⑦In the H1 interface, select "Set Backwash Time" and press "", as the figure A7

shows. Press "▲" or "▼" to select the backwash time that you need. Press "□" to save the setting and turn back to H1; or press "⏮" to turn back to H1 without saving the setting.

⑧ In the H1 interface, select "Set B.S. R.T." and press "□", as the figure A8 shows. Press "▲" or "▼" to select the brine & slow rinse time that you need. Press "□" to save the setting and turn back to H1; or press "⏮" to turn back to H1 without saving the setting.

⑨ In the H1 interface, select "Set B.R. Time" and press "□", as the figure A9 shows. Press "▲" or "▼" to select the brine refill time that you need. Press "□" to save the setting and turn back to H1; or press "⏮" to turn back to H1 without saving the setting.

⑩ In the H1 interface, select "Set F.R. Time" and press "□", as the figure A10 shows. Press "▲" or "▼" to select the fast rinse time that you need. Press "□" to save the setting and turn back to H1; or press "⏮" to turn back to H1 without saving the setting.

⑪ In the H1 interface, if the mode is "Filter", then press "□" and enter "Set Valve Model" menu, as the figure A11 shows. Press "▲" or "▼" to select the valve type that you need. Press "□" to save the setting and turn back to H1; or press "⏮" to turn back to H1 without saving the setting.

⑫ In the H1 interface, if the mode is "Filter" or the "Set Type" of "Softener" is "Time Clock Type", it has to select the "Service Days". Choose the "Service Days" and press "□", as the figure A12 shows. Press "▲" or "▼" to select the service days that you need. Press "□" to save the setting and turn back to H1; or press "⏮" to turn back to H1 without saving the setting.

#### Special Version:

The all above parameters should be set in accordance with the control valve, or else, it may be hardly to realize the functions.

### 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 parameter, please conduct the trial running as follows:

A. 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.

B. Switch on power. Press "⏮" and go in the backwash position; 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.

C. Press "⏮", turning the position from backwash to brine & slow rinse; enter in the process of brine & slow rinse. The air check valve close when control valve finished sucking brine, then slow rinse start to work. It is about 60~65 minutes for whole process.

D. Press "⏮" to brine refill position, the brine tank is being refilled with water to the required level. It takes about 5~6 minutes, then add solid salt to the brine tank.

E. Press "⏮", turning to fast rinse position and start to fast rinse. After 10~15 minutes, take out some outlet water for testing; if the water hardness reach the requirement, and the chloridion in water is almost the same compared with the inlet water, then go to the next step.

F. Press "⏮", making the control valve return to service status and start to running.

#### Note:

● **When the control valve enters 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 2.**

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

● **The time for Backwash, Brine& Slow Rinse, Brine Refill and Fast Rinse 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.<br>B. Regeneration cycles set incorrect.<br>C. Controller is defective.<br>D. Motor fails to work.  | A. Assure permanent electrical service (Check fuse, plug, pull chain or switch).<br>B. Reset regeneration time.<br>C. Replace controller.<br>D. Replace motor.  |
| 2. Regeneration time is not correct. | A. Time of day does not set correctly.<br>B. Power failure more than 3 days.  | A. Check program and reset time of day.<br>B. Reset time of day.  |
| 3. Softener supplies hard water.     | A. Bypass valve is open or leaking.<br>B. No salt in brine tank.<br>C. Injector plugged.<br>D. Insufficient water flowing into brine tank.<br>E. O-ring on riser pipe leaks.<br>F. Interior of valve leaks.<br>G. Regeneration cycles are not correct or raw water quality deteriorated.<br>H. Shortage of resin.<br>I. Bad quality of raw water or impeller blocked. | A. Close or repair bypass valve.<br>B. Make sure there is solid salt in the brine tank.<br>C. Change or clean injector.<br>D. Check brine tank refill time.<br>E. Make sure riser pipe is not cracked.<br>F. Check o-ring and tube pilot.<br>G. Check and repair valve body.<br>H. Set correct regeneration time or water capacity.<br>I. Add resin to mineral tank and check whether resin leaks.<br>J. Reduce the inlet turbidity, clean or replace flow meter. |
| 4. Softener fails to draw brine.     | A. Inlet pressure is too low.<br>B. Brine line plugged.<br>C. Brine line leaks.<br>D. Injector plugged or damaged.<br>E. Interior of valve leaks.<br>F. Drain line plugged.<br>G. Sizes of injector and DLFC not match with tank.   | A. Increase inlet pressure.<br>B. Clean brine line and exclude stuff.<br>C. Clean brine line.<br>D. Clean or replace injector.<br>E. Repair or replace valve body.<br>F. Check drain line.<br>G. Select correct injector size and DLFC according to the instruction requirements.   |
| 5. Unit used too much salt.          | A. Improper salt setting.<br>B. Excessive water in brine tank.  | A. Check salt usage and salt setting.<br>B. See problem no.6.   |

Control Valve Fault (Continue)

|  |   |  |
|--|---|--|
| 6. Excessive water in brine tank.                                | A. Overlong refilling time.<br>B. Excess water left after brine draw.<br>C. Foreign material in liquid level controller.<br>D. Not install liquid level controller and power failure in brine status.<br>E. Brine refill is uncontrolled.   | A. Reset correct refilling time.<br>B. Check the injector and make sure no stuff in the brine pipe.<br>C. Clean liquid level controller.<br>D. Stop water supplying and restart or install liquid level controller in salt tank when power restored.<br>E. Repair or replace liquid level controller.      |
| 7. Pressure lost or iron in the pipe.                            | A. Iron scale in the water supply pipe.<br>B. Iron scale accumulated in the softener.<br>C. Fouled resin bed.<br>D. Too much iron in the raw water.   | A. Clean the water supply pipe.<br>B. Clean valve and add resin cleaning chemical, increase frequency of regeneration.<br>C. Check backwash, brine draw and brine tank refill. Increase frequency of regeneration and backwash time.<br>D. Iron removal equipment is required to install before softening. |
| 8. Resin discharged through drain pipe.                          | A. Air in water system.<br>B. Strainer broken.<br>C. Large drain flow rate when backwash.   | A. Empty the air from the system.<br>B. Replace new strainer.<br>C. Check and adjust proper drain rate.  |
| 9. Control valve cycle continuously.                             | A. Locating signal wire breakdown.<br>B. Controller is faulty.<br>C. Foreign material stuck the driving gear.<br>D. Time of regeneration steps were set to zero.  | A. Check and connect locating signal wire.<br>B. Replace controller.<br>C. Take out foreign material.<br>D. Check program setting and reset.   |
| 10. Drain flows continuously.                                    | A. Interior of valve leaks.<br>B. Power off when in backwash or fast rinse.   | A. Check and repair valve body or replace it.<br>B. Adjust valve to service status or turn off bypass valve and restart when electricity supply.   |
| 11. Interrupted or irregular brine draw.                         | A. Water pressure too low or not stable.<br>B. Injector is plugged or damaged.<br>C. Air in resin tank.<br>D. Floccules in resin tank during up-flow regeneration.  | A. Increase water pressure.<br>B. Clean or replace injector.<br>C. Check and find the reason.<br>D. Clean the floccules in resin tank.   |
| 12. Water flows out from drain or brine pipe after regeneration. | A. Foreign material in valve which makes valve can't be closed completely.<br>B. Hard water mixed in valve body.<br>C. Water pressure is too high which results in valve not getting the right status.<br>D. Under the backwash status, the outlet line and brine line are connected. | A. Clean foreign material in valve body.<br>B. Change valve core or sealing ring.<br>C. Reduce water pressure or use pressure release function.<br>D. Install a check valve, solenoid valve in front of the outlet or install a liquid level controller in the brine tank.                                 |

Control Valve Fault (Continue)

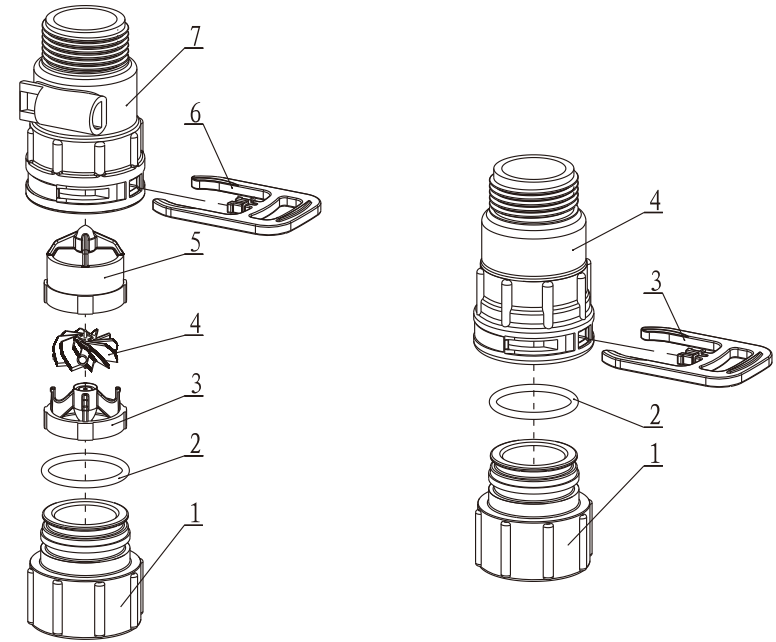
|                                 |   |   |
|---------------------------------|---|---|
| 13. Salt water in outflow pipe. | A. Foreign material in injector or injector fails to work.<br>B. Brine valve cannot be shut-off.<br>C. Fast rinse time is too short.  | A. Clean and repair injector.<br>B. Repair brine valve and clean it.<br>C. Extend fast rinse time.  |
| 14. Water capacity decreases.   | A. Regenerate not properly.<br>B. Fouled resin bed.<br>C. Salt setting not proper.<br>D. Softener setting not proper.<br>E. Raw water quality deterioration.<br>F. Impeller has already gotten stuck. | A. Regenerate according to the right way.<br>B. Increase backwash flow rate and time, clean or change resin.<br>C. Reset the appropriate amount of salt.<br>D. According to the test of outlet water, recount and reset.<br>E. Regenerate unit by manual temporary, then reset regeneration cycle.<br>F. Disassemble flow meter and clean it or replace it with a new flow meter. |

B. Controller Fault

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

3.8. Assembly & Parts

F63 Flow Meter Connector & Animated Connector



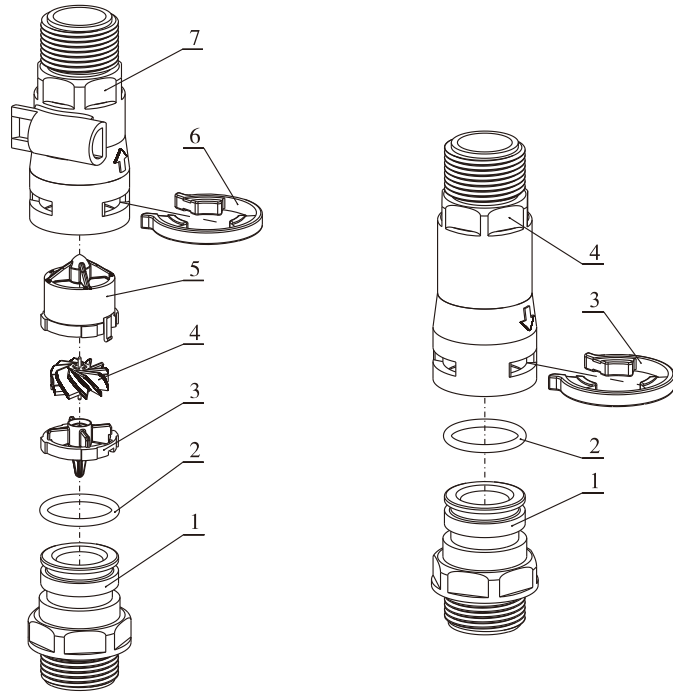
5447018 Flow Meter

5457002 Animated Connector

| 5447018 Flow Meter |                    |          |          | 5457002 Animated Connector |              |          |          |
|--------------------|--------------------|----------|----------|----------------------------|--------------|----------|----------|
| Item No.           | Description        | Part No. | Quantity | Item No.                   | Description  | Part No. | Quantity |
| 1                  | Animated Nut       | 8945001  | 1        | 1                          | Animated Nut | 8945001  | 1        |
| 2                  | O-ring             | 8378081  | 1        | 2                          | O-ring       | 8378081  | 1        |
| 3                  | Impeller Supporter | 5115022  | 1        | 3                          | Clip         | 8270004  | 1        |
| 4                  | Impeller           | 5436010  | 1        | 4                          | Connector    | 8458038  | 1        |
| 5                  | Impeller Supporter | 5115021  | 1        |                            |              |          |          |
| 6                  | Clip               | 8270004  | 1        |                            |              |          |          |
| 7                  | Shell              | 8002001  | 1        |                            |              |          |          |

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

F65 Flow Meter Connector & Animated Connector



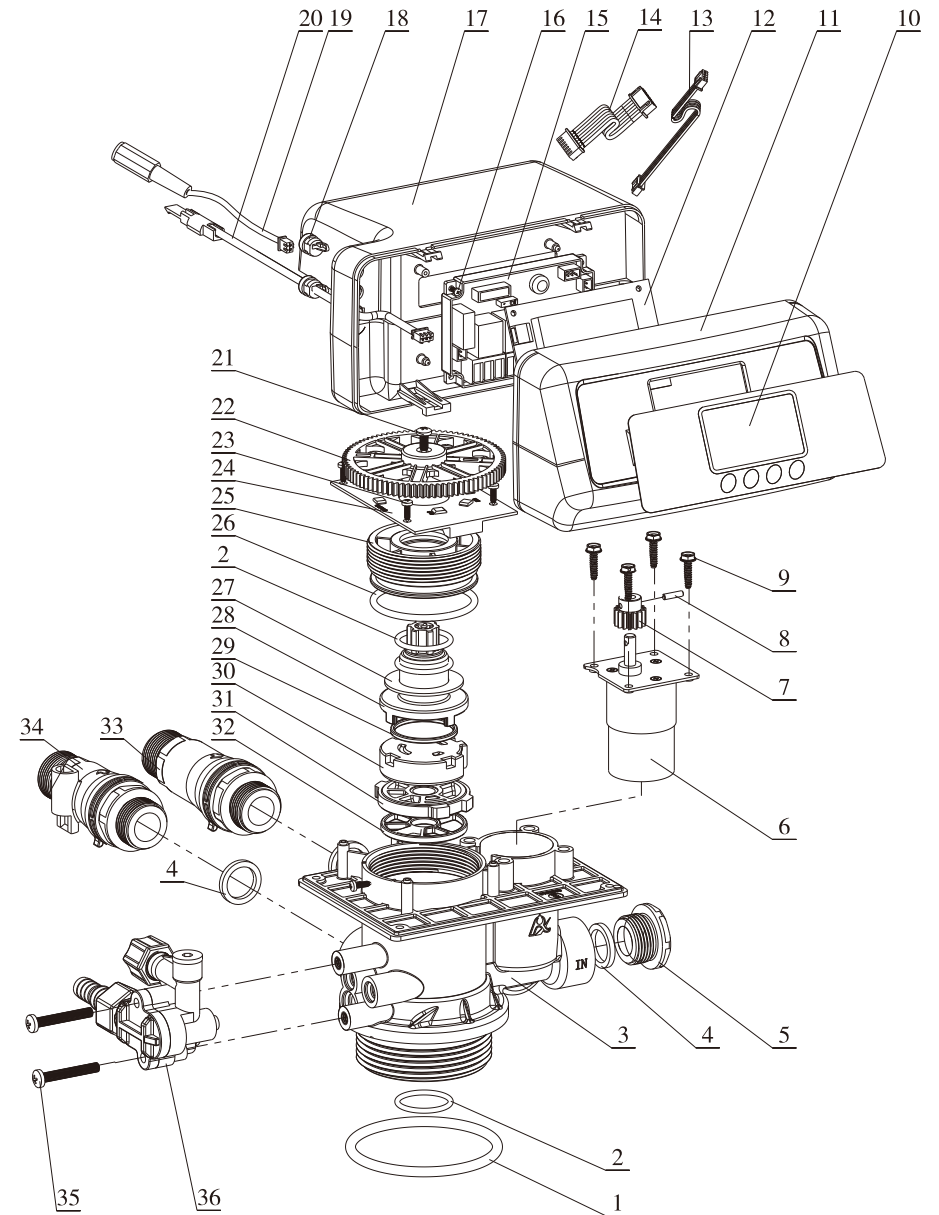
5447020 Flow Meter

5457003 Animated Connector

| 5447020 Flow Meter |                    |          |          | 5457003 Animated Connector |             |          |          |
|--------------------|--------------------|----------|----------|----------------------------|-------------|----------|----------|
| Item No.           | Description        | Part No. | Quantity | Item No.                   | Description | Part No. | Quantity |
| 1                  | Connector          | 8458014  | 1        | 1                          | Connector   | 8458014  | 1        |
| 2                  | O-ring             | 8378064  | 1        | 2                          | O-ring      | 8378064  | 1        |
| 3                  | Impeller Supporter | 5115023  | 1        | 3                          | Clip        | 8270005  | 1        |
| 4                  | Impeller           | 5436013  | 1        | 4                          | Connector   | 8458039  | 1        |
| 5                  | Impeller Supporter | 5115024  | 1        |                            |             |          |          |
| 6                  | Clip               | 8270005  | 1        |                            |             |          |          |
| 7                  | Shell              | 8002006  | 1        |                            |             |          |          |

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

F65D3 (62602)/F69D3 (72602) Valve Body Assembly



MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

F65D1/F65D3 Valve Body Components (Item No.20, 33, 34 only for F65D3)

| Item No. | Description              | Part No. | Quantity | Item No. | Description              | Part No. | Quantity |
|----------|--------------------------|----------|----------|----------|--------------------------|----------|----------|
| 1        | O-ring73 × 5.3           | 8378143  | 1        | 19       | Wire for Power           | 5513003  | 1        |
| 2        | O-ring 25.8 × 2.65       | 8378078  | 3        | 20       | Probe Wire               | 6386014  | 1        |
| 3        | Valve Body (ABS+GF10)    | 5022018  | 1        | 21       | Screw, Cross ST3.9 × 13  | 8909013  | 1        |
|          | Valve Body (PPO+GF20)    | 5022019  |          | 22       | Gear                     | 5241005  | 1        |
| 4        | Seal Washer              | 8371019  | 3        | 23       | Screw, Cross ST2.9 × 9.5 | 8909008  | 7        |
| 5        | Plug                     | 8323005  | 1        | 24       | Locating Board           | 6380003  | 1        |
| 6        | Motor                    | 6158006  | 1        | 25       | Fitting Nut              | 8092007  | 1        |
| 7        | Small Gear, Motor        | 8241010  | 1        | 26       | O-ring 50.39 × 3.53      | 8378107  | 1        |
| 8        | Pin                      | 8993003  | 1        | 27       | Anti-friction Washer     | 8216010  | 1        |
| 9        | Screw, Cross ST3.9 × 16  | 8909044  | 4        | 28       | Shaft                    | 8258009  | 1        |
| 10       | Label                    | 8865013  | 1        | 29       | Moving Seal Ring         | 8370053  | 1        |
| 11       | Front Cover              | 8300004  | 1        | 30       | Moving Disk              | 8459013  | 1        |
| 12       | Display Board            | 6381006  | 1        | 31       | Fixed Disk               | 8469012  | 1        |
| 13       | Wire for Display Board   | 5512002  | 1        | 32       | Seal Ring                | 8370025  | 1        |
| 14       | Wire for Locating Board  | 5511008  | 1        | 33       | Animated Connector       | 5457003  | 1        |
| 15       | Control Board            | 6382043  | 1        | 34       | Flow Meter               | 5447020  | 1        |
| 16       | Screw, Cross ST2.2 × 6.5 | 8909004  | 2        | 35       | Screw, Cross M5 × 35     | 8902017  | 2        |
| 17       | Dust Cover               | 8005005  | 1        | 36       | Old Injector (standard)  | 5468005  | 1        |
| 18       | Cable Clip               | 8126004  | 2        |          | New Injector (standard)  | 5468241  |          |

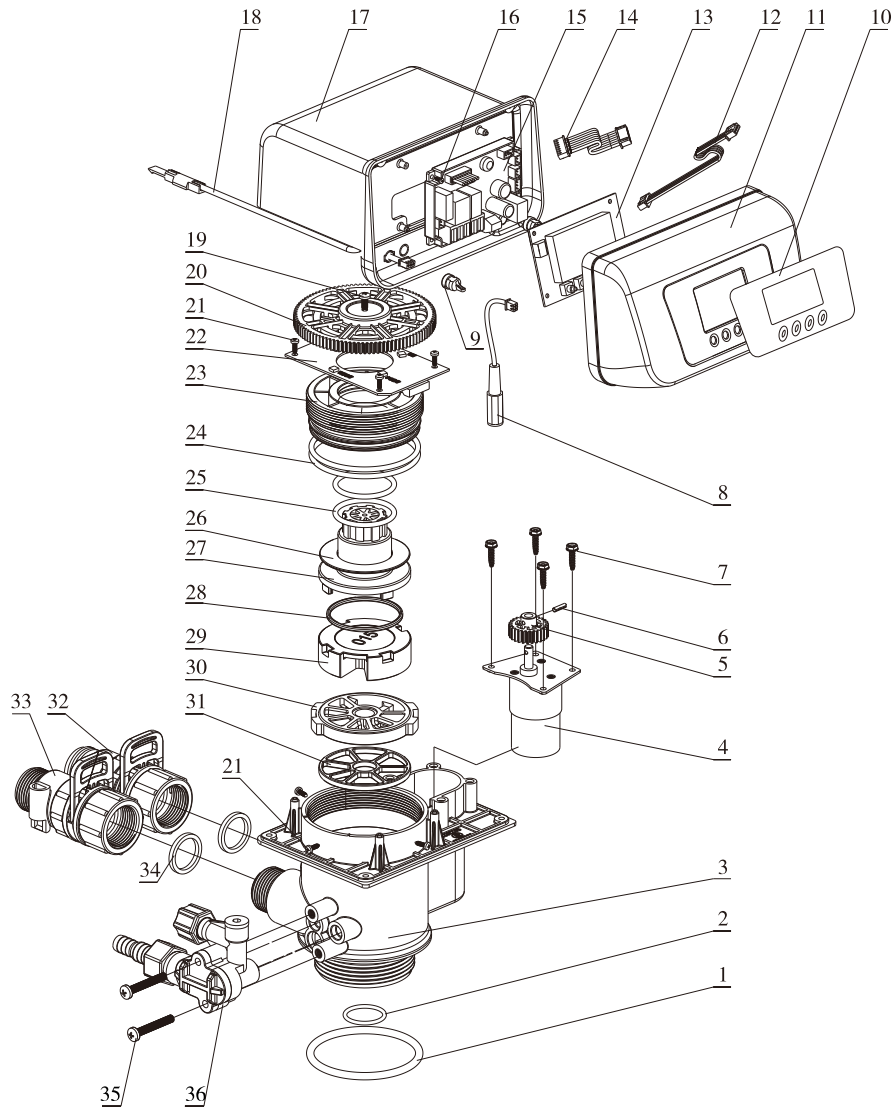
MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

F69D1/F69D3 Valve Body Components (Item No.20, 33, 34 only for F69D3)

| Item No. | Description              | Part No. | Quantity | Item No. | Description              | Part No. | Quantity |
|----------|--------------------------|----------|----------|----------|--------------------------|----------|----------|
| 1        | O-ring73 × 5.3           | 8378143  | 1        | 19       | Wire for Power           | 5513003  | 1        |
| 2        | O-ring25.8 × 2.65        | 8378078  | 3        | 20       | Probe Wire               | 6386014  | 1        |
| 3        | Valve Body (ABS+GF10)    | 5022024  | 1        | 21       | Screw, Cross ST3.9 × 13  | 8909013  | 1        |
|          | Valve Body (PPO+GF20)    | 5022025  |          | 22       | Gear                     | 5241005  | 1        |
| 4        | Seal Washer              | 8371019  | 3        | 23       | Screw, Cross ST2.9 × 9.5 | 8909008  | 7        |
| 5        | Plug                     | 8323005  | 1        | 24       | Locating Board           | 6380008  | 1        |
| 6        | Motor                    | 6158006  | 1        | 25       | Fitting Nut              | 8092007  | 1        |
| 7        | Small Gear, Motor        | 8241010  | 1        | 26       | O-ring 50.39 × 3.53      | 8378107  | 1        |
| 8        | Pin                      | 8993003  | 1        | 27       | Anti-friction Washer     | 8216010  | 1        |
| 9        | Screw, Cross ST3.9 × 16  | 8909044  | 4        | 28       | Shaft                    | 8258009  | 1        |
| 10       | Label                    | 8865014  | 1        | 29       | Moving Seal Ring         | 8370053  | 1        |
| 11       | Front Cover              | 8300008  | 1        | 30       | Moving Disk              | 8459016  | 1        |
| 12       | Display Board            | 6381006  | 1        | 31       | Fixed Disk               | 8469015  | 1        |
| 13       | Wire for Display Board   | 5512002  | 1        | 32       | Seal Ring                | 8370034  | 1        |
| 14       | Wire for Locating Board  | 5511009  | 1        | 33       | Animated Connector       | 5457003  | 1        |
| 15       | Control Board            | 6382043  | 1        | 34       | Flow Meter               | 5447020  | 1        |
| 16       | Screw, Cross ST2.2 × 6.5 | 8909004  | 2        | 35       | Screw, Cross M5 × 35     | 8902017  | 2        |
| 17       | Dust Cover               | 8005008  | 1        | 36       | Old Injector (standard)  | 5468005  | 1        |
| 18       | Cable Clip               | 8126004  | 2        |          | New Injector (standard)  | 5468251  |          |

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

F63D3 (62604)/F68D3 (72604) Valve Body Assembly



MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

F63D1/F63D3 Valve Body Components (Item No.18, 32, 33 only for F63D3)

| Item No. | Description              | Part Number | Quantity | Item No. | Description              | Part Number | Quantity |
|----------|--------------------------|-------------|----------|----------|--------------------------|-------------|----------|
| 1        | O-ring 73 × 5.3          | 8378143     | 1        | 20       | Gear                     | 5241002     | 1        |
| 2        | O-ring 25.8 × 2.65       | 8378078     | 1        | 21       | Screw, Cross ST2.9 × 9.5 | 8909008     | 7        |
| 3        | Valve Body (ABS+GF10)    | 5022033     | 1        | 22       | Locating Board           | 6380001     | 1        |
|          | Valve Body (PPO+GF20)    | 5022034     |          | 23       | Fitting Nut              | 8092004     | 1        |
| 4        | Motor                    | 6158011     | 1        | 24       | O-ring 73 × 3.55         | 8378128     | 2        |
| 5        | Small Gear, Motor        | 8241003     | 1        | 25       | O-ring 37.7 × 3.55       | 8378184     | 2        |
| 6        | Pin                      | 8993003     | 1        | 26       | Anti-friction Washer     | 8216004     | 1        |
| 7        | Screw, Cross ST3.9 × 16  | 8909044     | 4        | 27       | Shaft                    | 8258004     | 1        |
| 8        | Wire for Power           | 5513003     | 1        | 28       | Moving Seal Ring         | 8370001     | 1        |
| 9        | Cable Clip               | 8126004     | 2        | 29       | Moving Disk              | 8459001     | 1        |
| 10       | Label                    | 8865024     | 1        | 30       | Fixed Disk               | 8469001     | 1        |
| 11       | Front Cover              | 8300001     | 1        | 31       | Seal Ring                | 8370002     | 1        |
| 12       | Wire for Display Board   | 5512002     | 1        | 32       | Animated Connector       | 5457002     | 1        |
| 13       | Display Board            | 6381006     | 1        | 33       | Flow Meter               | 5447018     | 1        |
| 14       | Wire for Locating Board  | 5511008     | 1        | 34       | Seal Washer              | 8371001     | 2        |
| 15       | Control Board            | 6382043     | 1        | 35       | Screw, Cross M5 × 35     | 8902017     | 2        |
| 16       | Screw, Cross ST2.2 × 6.5 | 8909004     | 2        | 36       | Old Injector (standard)  | 5468009     | 1        |
| 17       | Dust Cover               | 8005006     | 1        |          | New Injector (standard)  | 5468245     |          |
| 18       | Probe Wire               | 6386014     | 1        |          |                          |             |          |
| 19       | Screw, Cross ST3.9 × 13  | 8909013     | 1        |          |                          |             |          |

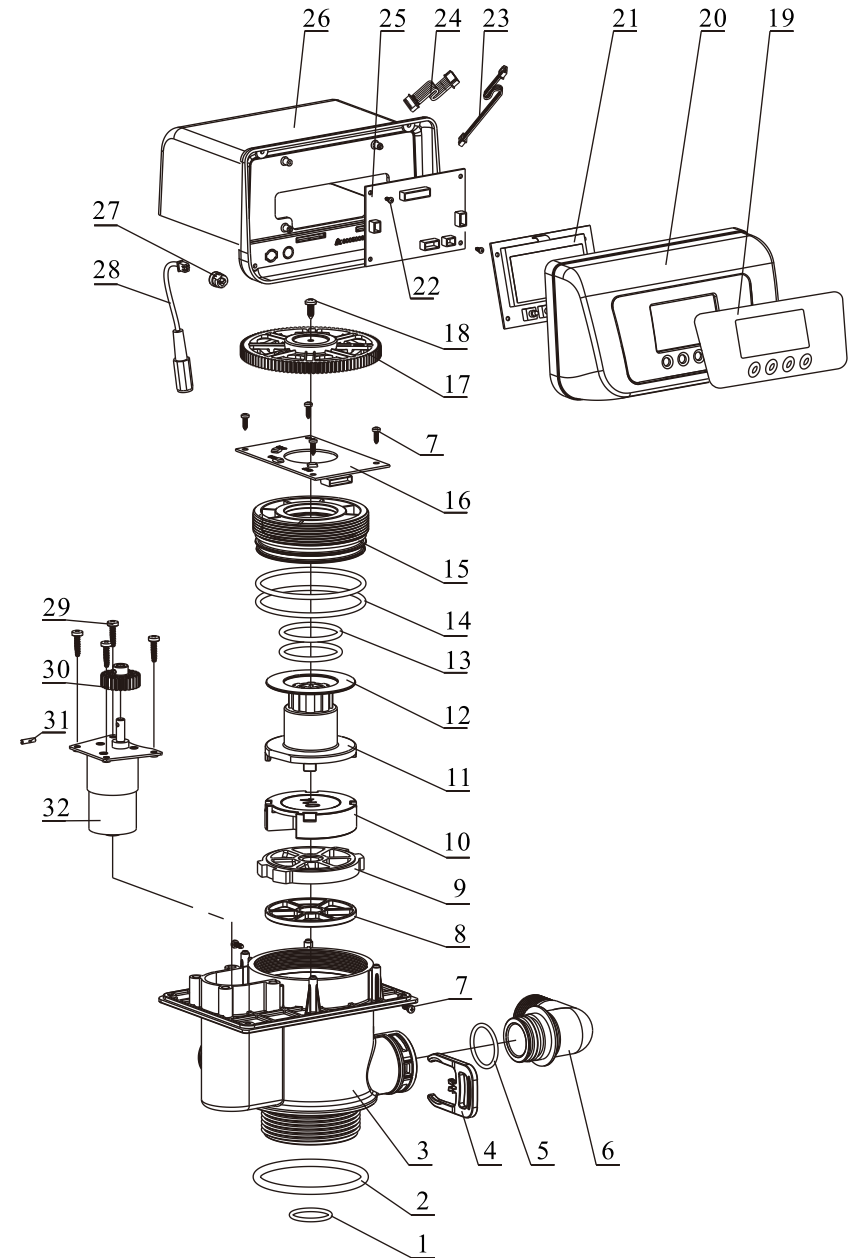
MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

F68D1/F68D3 Valve Body Components (Item No. 18, 32, 33 only for F68D3)

| Item No. | Description              | Part Number | Quantity | Item No. | Description              | Part Number | Quantity |
|----------|--------------------------|-------------|----------|----------|--------------------------|-------------|----------|
| 1        | O-ring 73 × 5.3          | 8378143     | 1        | 20       | Gear                     | 5241002     | 1        |
| 2        | O-ring 25.8 × 2.65       | 8378078     | 1        | 21       | Screw, Cross ST2.9 × 9.5 | 8909008     | 7        |
| 3        | Valve Body (ABS+GF10)    | 5022022     | 1        | 22       | Locating Board           | 6380006     | 1        |
|          | Valve Body (PPO+GF20)    | 5022023     |          | 23       | Fitting Nut              | 8092004     | 1        |
| 4        | Motor                    | 6158011     | 1        | 24       | O-ring 73 × 3.55         | 8378128     | 2        |
| 5        | Small Gear, Motor        | 8241003     | 1        | 25       | O-ring 37.7 × 3.55       | 8378184     | 2        |
| 6        | Pin                      | 8993003     | 1        | 26       | Anti-friction Washer     | 8216004     | 1        |
| 7        | Screw, Cross ST3.9 × 16  | 8909044     | 4        | 27       | Shaft                    | 8258004     | 1        |
| 8        | Wire for Power           | 5513003     | 1        | 28       | Moving Seal Ring         | 8370001     | 1        |
| 9        | Cable Clip               | 8126004     | 2        | 29       | Moving Disk              | 8459015     | 1        |
| 10       | Label                    | 8865024     | 1        | 30       | Fixed Disk               | 8469014     | 1        |
| 11       | Front Cover              | 8300001     | 1        | 31       | Seal Ring                | 8370029     | 1        |
| 12       | Wire for Display Board   | 5512002     | 1        | 32       | Animated Connector       | 5457002     | 1        |
| 13       | Display Board            | 6381006     | 1        | 33       | Flow Meter               | 5447018     | 1        |
| 14       | Wire for Locating Board  | 5511009     | 1        | 34       | Seal Washer              | 8371001     | 2        |
| 15       | Control Board            | 6382043     | 1        | 35       | Screw, Cross M5 × 35     | 8902017     | 2        |
| 16       | Screw, Cross ST2.2 × 6.5 | 8909004     | 4        | 36       | Old Injector (standard)  | 5468009     | 1        |
| 17       | Dust Cover               | 8005006     | 1        |          | New Injector (standard)  | 5468255     |          |
| 18       | Probe Wire               | 6386014     | 1        |          |                          |             |          |
| 19       | Screw, Cross ST3.9 × 13  | 8909013     | 1        |          |                          |             |          |

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

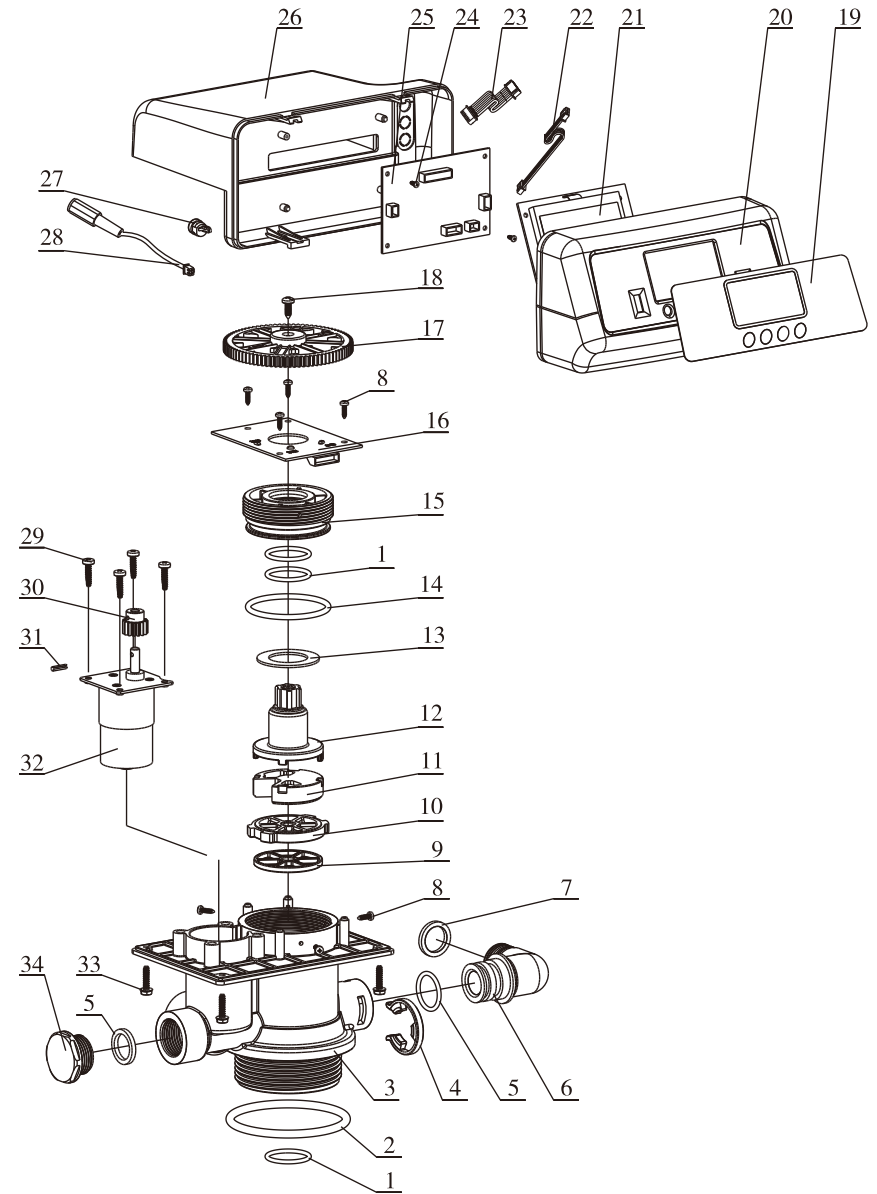
F67D1 Valve Body Assembly



F67D1 Valve Body Components

| Item No. | Description              | Part Number | Quantity | Item No. | Description              | Part Number | Quantity |
|----------|--------------------------|-------------|----------|----------|--------------------------|-------------|----------|
| 1        | O-ring 25.8 × 2.65       | 8378078     | 3        | 17       | Gear                     | 5241002     | 1        |
| 2        | O-ring 73 × 5.3          | 8378143     | 1        | 18       | Screw, Cross ST3.9 × 13  | 8909013     | 1        |
| 3        | Valve Body (ABS+GF10)    | 5022176     | 1        | 19       | Label                    | 8865024     | 1        |
|          | Valve Body (PPO+GF20)    | 5022177     |          | 20       | Front Cover              | 8300001     | 1        |
| 4        | Clip                     | 8270004     | 1        | 21       | Display Board            | 6381006     | 1        |
| 5        | O-ring 28 × 2.65         | 8378081     | 1        | 22       | Screw, Cross ST2.2 × 6.5 | 8909004     | 2        |
| 6        | Elbow                    | 8457034     | 1        | 23       | Wire for Display Board   | 5512002     | 1        |
| 7        | Screw, Cross ST2.9 × 9.5 | 8909008     | 7        | 24       | Wire for Locating Board  | 5511008     | 1        |
| 8        | Shaft                    | 8370027     | 1        | 25       | Control Board            | 6382043     | 1        |
| 9        | Seal Ring                | 8469013     | 1        | 26       | Dust cover               | 8005006     | 1        |
| 10       | Fixed Disk               | 8459014     | 1        | 27       | Cable Clip               | 8126004     | 1        |
| 11       | Moving Disk              | 8258004     | 1        | 28       | Wire for Power           | 5513003     | 1        |
| 12       | Anti-friction Washer     | 8216004     | 1        | 29       | Screw, Cross ST3.9 × 16  | 8909044     | 4        |
| 13       | O-ring 38.7 × 3.55       | 8378184     | 2        | 30       | Small Gear               | 8241003     | 1        |
| 14       | O-ring 73 × 3.55         | 8378128     | 2        | 31       | Pin φ2.5 × 12            | 8993003     | 1        |
| 15       | Fitting Nut              | 8092004     | 1        | 32       | Motor                    | 6158011     | 1        |
| 16       | Locating Board           | 6380022     | 1        |          |                          |             |          |

F71D1 Valve Body Assembly



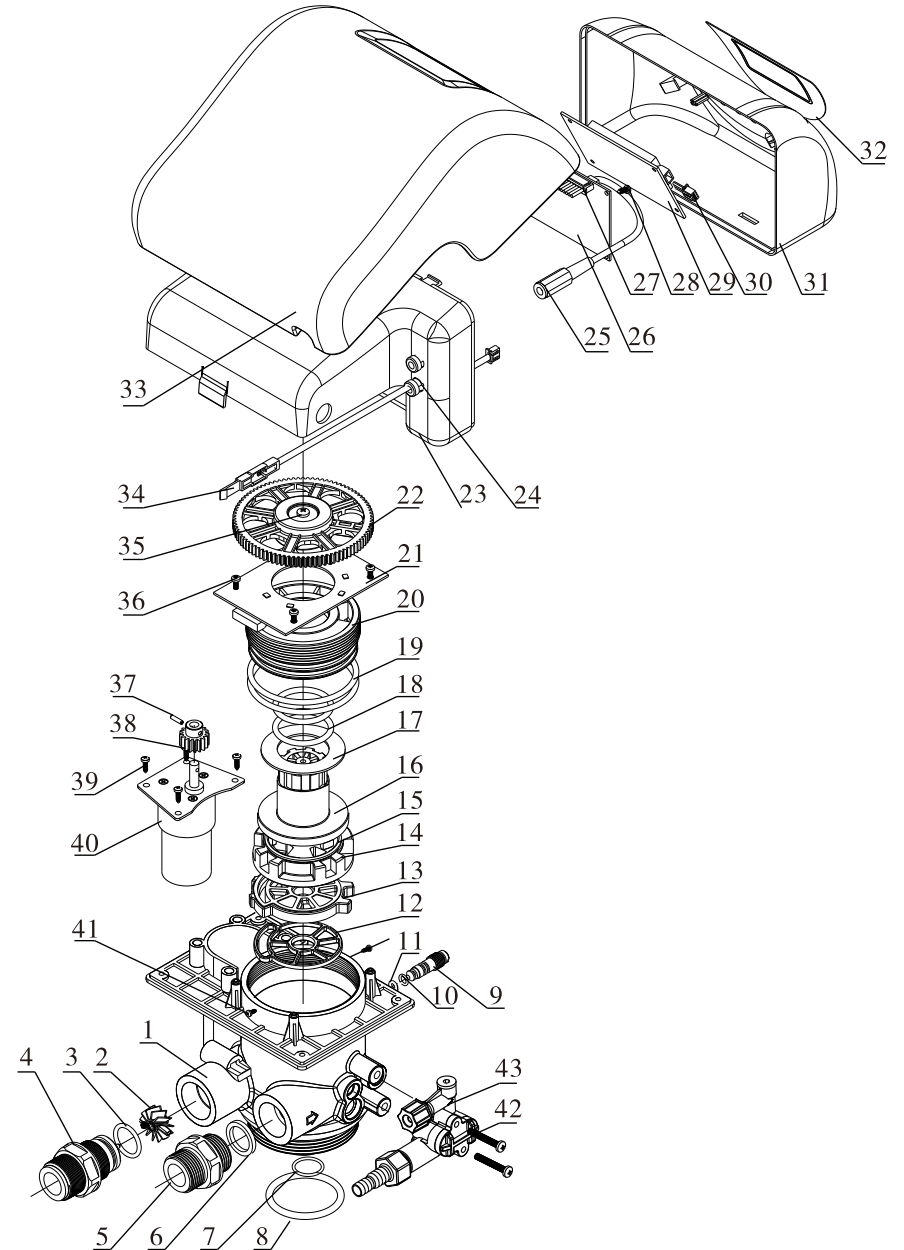
MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

F71D1 Valve Body Components

| Item No. | Description            | Part No. | Quantity | Item No. | Description             | Part No. | Quantity |
|----------|------------------------|----------|----------|----------|-------------------------|----------|----------|
| 1        | O-ring 25.8×2.65       | 8378078  | 3        | 18       | Screw, Cross ST3.9×13   | 8909013  | 1        |
| 2        | O-ring 73×5.3          | 8378143  | 1        | 19       | Label                   | 8865013  | 1        |
| 3        | Valve Body (ABS+GF10)  | 5022201  | 1        | 20       | Front Cover             | 8300004  | 1        |
|          | Valve Body (PPO+GF20)  | 5022202  |          | 21       | Display Board           | 6381006  | 1        |
| 4        | Clip                   | 8270005  | 1        | 22       | Wire for Display Board  | 5512002  | 1        |
| 5        | O-ring 21.89×2.62      | 8378064  | 1        | 23       | Wire for Locating Board | 5511008  | 1        |
| 6        | Elbow                  | 8457035  | 1        | 24       | Screw, Cross ST2.2×6.5  | 8909004  | 2        |
| 7        | Seal Washer            | 8371019  | 4        | 25       | Control Board           | 6382043  | 1        |
| 8        | Screw, Cross ST2.9×9.5 | 8909008  | 7        | 26       | Dust cover              | 8005025  | 1        |
| 9        | Seal Ring              | 8370038  | 1        | 27       | Cable Clip              | 8126004  | 1        |
| 10       | Fixed Disk             | 8469018  | 1        | 28       | Wire for Power          | 5513003  | 1        |
| 11       | Moving Disk            | 8459019  | 1        | 29       | Screw, Cross ST3.9×16   | 8909044  | 4        |
| 12       | Shaft                  | 8258009  | 1        | 30       | Small Gear              | 8241010  | 1        |
| 13       | Anti-friction Washer   | 8216010  | 1        | 31       | Pin φ2.5×12             | 8993003  | 1        |
| 14       | O-ring 50.39×3.53      | 8378107  | 1        | 32       | Motor                   | 6158006  | 1        |
| 15       | Fitting Nut            | 8092007  | 1        | 33       | Screw, Cross ST3.9×16   | 8909016  | 4        |
| 16       | Locating Board         | 6380023  | 1        | 34       | Plug                    | 8323005  | 1        |
| 17       | Gear                   | 5241005  | 1        |          |                         |          |          |

F79AD Valve Body Assembly





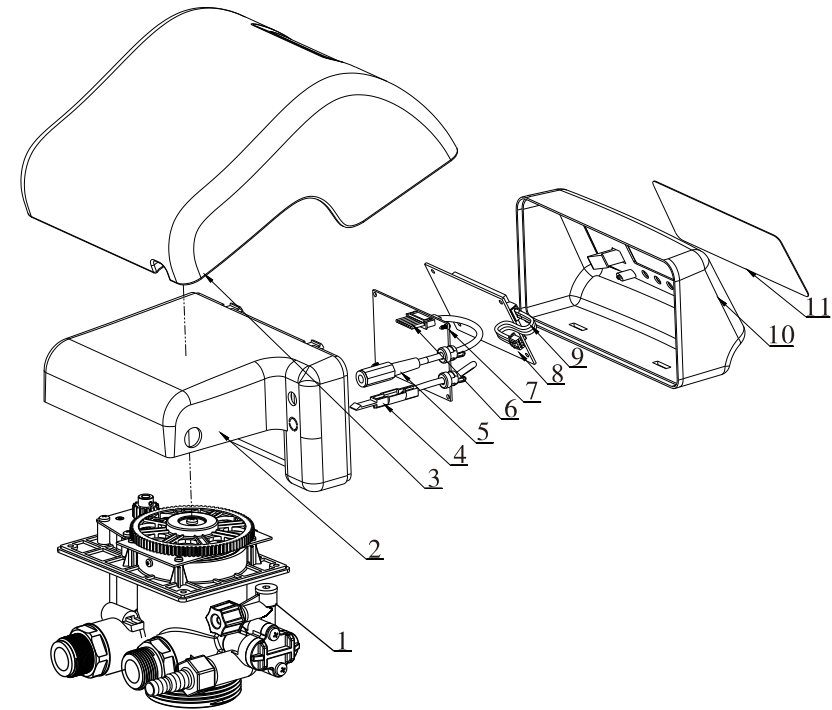
MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

F79AD Valve Body Components

| Item No. | Description          | Part No. | Quantity | Item No. | Description                      | Part No. | Quantity |
|----------|----------------------|----------|----------|----------|----------------------------------|----------|----------|
| 1        | Valve Body           | 5022029  | 1        | 24       | Cable Clip                       | 8126004  | 2        |
| 2        | Impeller             | 5436007  | 1        | 25       | Wire for Power                   | 5513003  | 1        |
| 3        | O-ring 19×2.65       | 8378075  | 1        | 26       | Control Board                    | 6382043  | 1        |
| 4        | Connector            | 8458026  | 1        | 27       | Wire for Locating Board          | 5511004  | 1        |
| 5        | Connector            | 8458011  | 1        | 28       | Screw, Cross                     | 8909004  | 2        |
| 6        | Seal Washer          | 8371019  | 1        | 29       | Display Board                    | 6381006  | 1        |
| 7        | O-ring 25.8×2.65     | 8378175  | 1        | 30       | Wire for Display Board           | 5512002  | 1        |
| 8        | O-ring 73×5.3        | 8378160  | 1        | 31       | Front Cover                      | 8300008  | 1        |
| 9        | Adjusting Bolt       | 8906002  | 1        | 32       | Label                            | 8865014  | 1        |
| 10       | O-ring 5×1.8         | 8378174  | 2        | 33       | Weather Cover                    | 8300015  | 1        |
| 11       | O-ring 3.75×1.8      | 8378183  | 1        | 34       | Probe Wire                       | 6386001  | 1        |
| 12       | Seal Washer          | 8370047  | 1        | 35       | Screw, Cross                     | 8909013  | 1        |
| 13       | Fixed Disk           | 8469024  | 1        | 36       | Screw, Cross                     | 8909008  | 4        |
| 14       | Moving Disk          | 8459026  | 1        | 37       | Pin                              | 8993003  | 1        |
| 15       | Moving Seal Ring     | 8370137  | 1        | 38       | Small Gear                       | 8241015  | 1        |
| 16       | Shaft                | 8258047  | 1        | 39       | Screw, Cross                     | 8909044  | 4        |
| 17       | Anti-friction Washer | 8216011  | 1        | 40       | Motor                            | 6158026  | 1        |
| 18       | O-ring 33.5×3.55     | 8378195  | 2        | 41       | Screw, Cross                     | 8909008  | 2        |
| 19       | O-ring 64×3.55       | 8378111  | 2        | 42       | Screw, Cross                     | 8902017  | 2        |
| 20       | Fitting Nut          | 8092011  | 1        | 43       | Old Injector (standard)          | 5468005  | 1        |
| 21       | Locating Board       | 6380011  | 1        |          | New Injector (standard-downflow) | 5468241  |          |
| 22       | Gear                 | 5241009  | 1        |          | New Injector (standard-upflow)   | 5468251  |          |
| 23       | Dust Cover           | 8005013  | 1        |          |                                  |          |          |

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

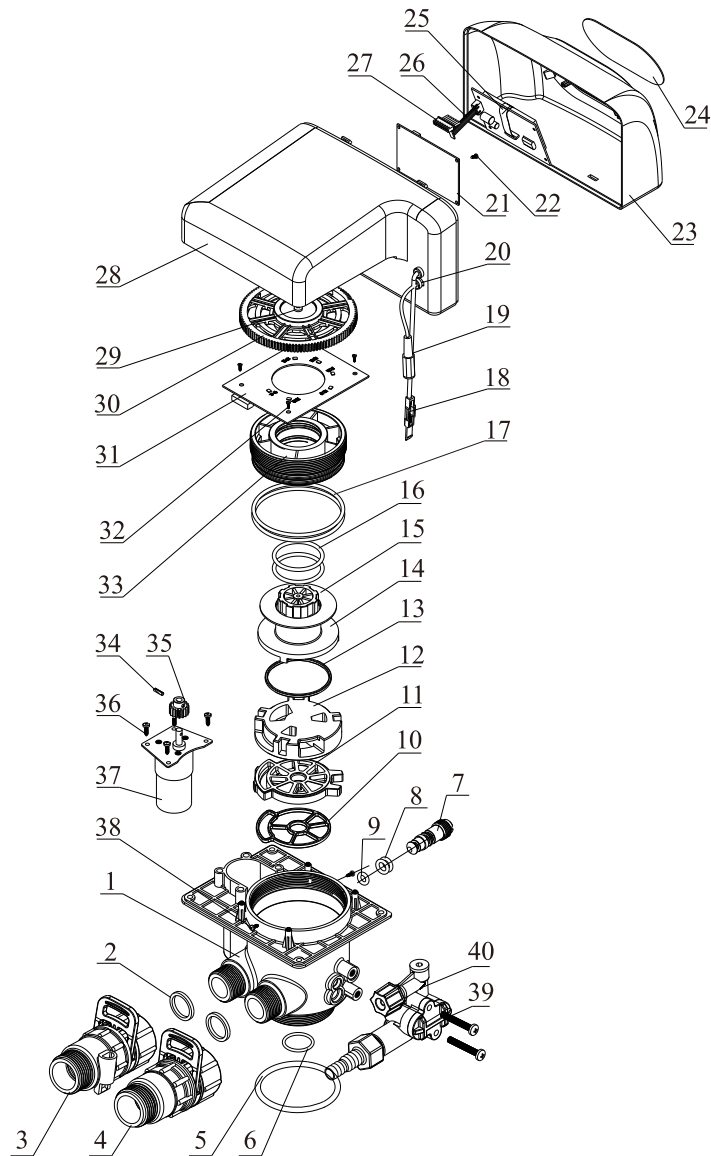
F79BD Valve Body Assembly and Components



| Item No. | Description             | Part No. | Quantity | Note   |
|----------|-------------------------|----------|----------|--|
| 1        | Valve Body Assembly     | 6794013  | 1        | Except for the moving disk (8459027), other parts are the same as 83602. |
| 2        | Dust Cover              | 8005014  | 1        | /  |
| 3        | Weather Cover           | 8300015  | 1        | /  |
| 4        | Probe Wire              | 6386001  | 1        | /  |
| 5        | Wire for Power          | 8513003  | 1        | /  |
| 6        | Wire for Locating Board | 5511004  | 1        | /  |
| 7        | Control Board           | 6382043  | 1        | /  |
| 8        | Display Board           | 6381006  | 1        | /  |
| 9        | Wire for Display Board  | 5512002  | 1        | /  |
| 10       | Front Cover             | 8300004  | 1        | /  |
| 11       | Label                   | 8865013  | 1        | /  |

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

F82AD3, F82BD3 Valve Body Assembly



MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

F82AD3, F82AD1, F82BD3, F82BD1 Valve Body Components

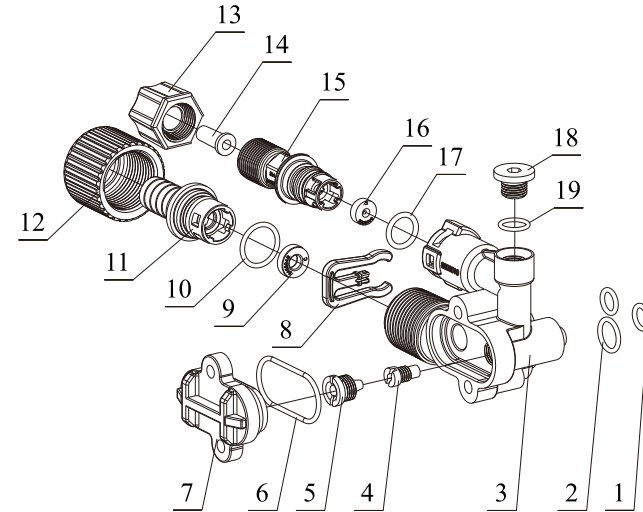
| Item No. | Description          | Part No. |         |         |         | Quantity |
|----------|----------------------|----------|---------|---------|---------|----------|
|          |                      | F82AD1   | F82AD3  | F82BD1  | F82BD3  |          |
| 1        | Valve Body           | 5022030  | 5022030 | 5022030 | 5022030 | 1        |
| 2        | Seal Washer          | /        | 8371001 | /       | 8371001 | 2        |
| 3        | Flow Meter           | /        | 5447018 | /       | 5447018 | 1        |
| 4        | Animated Connector   | /        | 5457002 | /       | 5457002 | 1        |
| 5        | O-ring 73 × 5.3      | 8378143  | 8378143 | 8378143 | 8378143 | 1        |
| 6        | O-ring 25.8 × 2.65   | 8378078  | 8378078 | 8378078 | 8378078 | 1        |
| 7        | Adjusting Bolt       | 8906003  | 8906003 | 8906003 | 8906003 | 1        |
| 8        | O-ring 8 × 1.5       | 8378004  | 8378004 | 8378004 | 8378004 | 2        |
| 9        | O-ring 7 × 1.8       | 8378015  | 8378015 | 8378015 | 8378015 | 1        |
| 10       | Seal Ring            | 8370049  | 8370049 | 8370049 | 8370049 | 1        |
| 11       | Fixed Disk           | 8469026  | 8469026 | 8469026 | 8469026 | 1        |
| 12       | Moving Disk          | 8459029  | 8459029 | 8459030 | 8459030 | 1        |
| 13       | Moving Seal Ring     | 8370138  | 8370138 | 8370138 | 8370138 | 1        |
| 14       | Shaft                | 8258048  | 8258048 | 8258048 | 8258048 | 1        |
| 15       | Anti-friction Washer | 8216012  | 8216012 | 8216012 | 8216012 | 1        |
| 16       | O-ring 43.7 × 3.55   | 8378123  | 8378123 | 8378123 | 8378123 | 2        |
| 17       | O-ring 84 × 3.5      | 8378102  | 8378102 | 8378102 | 8378102 | 2        |
| 18       | Probe Wire           | /        | 6386022 | /       | 6386022 | 1        |
| 19       | Wire for Power       | 5513003  | 5513003 | 5513003 | 5513003 | 1        |
| 20       | Cable Clip           | 8126004  | 8126004 | 8126004 | 8126004 | 2        |
| 21       | Control Board        | 6382043  | 6382043 | 6382043 | 6382043 | 1        |
| 22       | Screw, Cross         | 8909004  | 8909004 | 8909004 | 8909004 | 2        |
| 23       | Front Cover          | 8300017  | 8300017 | 8300007 | 8300007 | 1        |
| 24       | Label                | 8865016  | 8865016 | 8865007 | 8865007 | 1        |
| 25       | Display Board        | 6381006  | 6381006 | 6381006 | 6381006 | 1        |

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

|    |                                  |         |         |         |         |   |
|----|----------------------------------|---------|---------|---------|---------|---|
| 26 | Wire for Display Board           | 5512002 | 5512002 | 5512002 | 5512002 | 1 |
| 27 | Wire for Locating Board          | 5511004 | 5511004 | 5511004 | 5511004 | 1 |
| 28 | Dust Cover                       | 8005016 | 8005016 | 8005016 | 8005016 | 1 |
| 29 | Screw, Cross                     | 8909013 | 8909013 | 8909013 | 8909013 | 1 |
| 30 | Gear                             | 5241011 | 5241011 | 5241011 | 5241011 | 1 |
| 31 | Locating Board                   | 6380012 | 6380012 | 6380012 | 6380012 | 1 |
| 32 | Screw, Cross                     | 8909008 | 8909008 | 8909008 | 8909008 | 4 |
| 33 | Fitting Nut                      | 8092012 | 8092012 | 8092012 | 8092012 | 1 |
| 34 | Pin                              | 8993003 | 8993003 | 8993003 | 8993003 | 1 |
| 35 | Small Gear                       | 8241015 | 8241015 | 8241015 | 8241015 | 1 |
| 36 | Screw, Cross                     | 8909044 | 8909044 | 8909044 | 8909044 | 4 |
| 37 | Motor                            | 6158073 | 6158073 | 6158073 | 6158073 | 1 |
| 38 | Screw, Cross                     | 8909008 | 8909008 | 8909008 | 8909008 | 2 |
| 39 | Screw, Cross                     | 8902017 | 8902017 | 8902017 | 8902017 | 2 |
| 40 | Old Injector (standard)          | 5468009 | 5468009 | 5468009 | 5468009 | 1 |
|    | New Injector (standard-downflow) | 5468242 | 5468242 | 5468242 | 5468242 |   |
|    | New Injector (standard-upflow)   | 5468252 | 5468252 | 5468252 | 5468252 |   |

MODEL:F63D/F65D/F67D/F68D/F69D/F71D/F79D/F82D

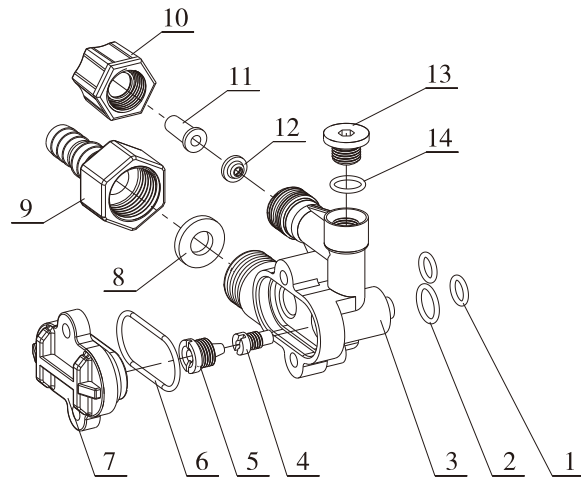
Structure Chart of New Injector:



New Injector Components:

| Item No. | Description       | Part No. | Quantity | Item No. | Description   | Part No. | Quantity |
|----------|-------------------|----------|----------|----------|---------------|----------|----------|
| 1        | O-ring 7.5×1.8    | 8378016  | 2        | 11       | Connector     | 8458064  | 1        |
| 2        | O-ring 10.82×1.78 | 8378012  | 1        | 12       | Animated Nut  | 8945025  | 1        |
| 3        | Injector Body     | 8008010  | 1        | 13       | Hexagonal Nut | 8940001  | 1        |
| 4        | Throat            | Optional | 1        | 14       | Tube          | 8457004  | 1        |
| 5        | Nozzle            | Optional | 1        | 15       | Connector     | 8458068  | 1        |
| 6        | O-ring 29.87×1.78 | 8378025  | 1        | 16       | BLFC          | Optional | 1        |
| 7        | Injector Cover    | 8315001  | 1        | 17       | O-ring 11×2   | 8378169  | 1        |
| 8        | Clip              | 8270010  | 1        | 18       | Plug          | 8323002  | 1        |
| 9        | DLFC              | Optional | 1        | 19       | Seal Ring     | 8370003  | 1        |
| 10       | O-ring 15×1.8     | 8378179  | 1        |          |               |          |          |

Structure Chart of Old Injector:



Old Injector Components:

| Item No. | Description       | Part No. | Quantity | Item No. | Description   | Part No. | Quantity |
|----------|-------------------|----------|----------|----------|---------------|----------|----------|
| 1        | O-ring 7.5×1.8    | 8378016  | 2        | 8        | DLFC          | 8468007  | 1        |
| 2        | O-ring 10.82×1.78 | 8378012  | 1        | 9        | Connector     | 8458017  | 1        |
| 3        | Injector Body     | 8008001  | 1        | 10       | Hexagonal Nut | 8940001  | 1        |
| 4        | Throat            | Optional | 1        | 11       | Tube          | 8457004  | 1        |
| 5        | Nozzle            | Optional | 1        | 12       | BLFC          | Optional | 1        |
| 6        | O-ring 29.87×1.78 | 8378025  | 1        | 13       | Plug          | 8323002  | 1        |
| 7        | Injector Cover    | 8315001  | 1        | 14       | Seal Ring     | 8370003  | 1        |

### 4. Warranty 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          | 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 product needs warranty service, please contact with your direct supplier firstly, after got permission, then 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 $\phi$ ×  |  | Resin Volume L                          | Raw Water Hardness | mmol/L |
| Water Source:<br>Ground-water <input type="checkbox"/> Tap Water <input type="checkbox"/> |  | Water Treatment Capacity m <sup>3</sup> | Backwash Time      | min    |
| Brine & Slow Rinse Time min   |  | Brine Refill Time min                   | Fast Rinse Time    | min    |
| Problem Description   |  |   |                    |        |