



**WENZHOU RUNXIN MANUFACTURING MACHINE CO.,LTD**

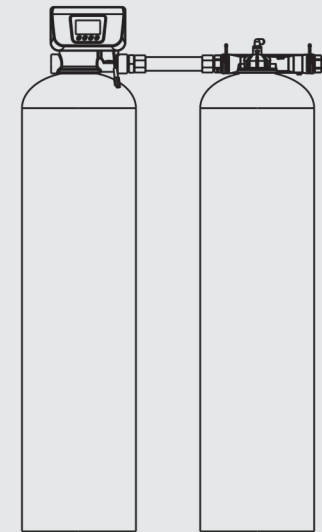
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Rev.A.2004



## Iron and Manganese Removal Device

- F107B1 (without filter valve)
- F107B2 (without filter valve,  
with drain port)
- F107C (without filter valve)



## User Manual

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

0WRX.466.599

## Catalogue

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## Notice

- To ensure normal operation of the valve, please consult with professional installation or repairing personnel before using it.
- If there is 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 filtration should be adjusted accordingly.
- Test water periodically to verify that system is performing satisfactorily.
- Do not put the valve near heat sources or surroundings with high humidity, corrosive, intense magnetic field or intense vibrations environment. In addition, do not leave it outside.
- Leave certain place for device installation, convenient for device operation and maintenance.
- If there is leaking water, as far as possible install the system near the place where loss minimization.
- Do not install the device, drain or connectors in a place which temperature may be lower than 5°C or higher than 50°C.
- Please use this product under the water temperature between 5~25°C, 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 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.
- In order to ensure the system operate steadily, please set up reasonable service and backwash parameters, so that the iron and manganese sediment can be discharged in time from the filter tank through backwashed and fast rinse.

## 1. Product Overview

### 1.1. Main Application & Applicability

Remove the iron or manganese from the water that has a high containing of iron and manganese, as a pre-treatment device before industrial softening system or demineralization system.

### 1.2. Product Characteristics

- High aeration dissolved oxygen degree.
- Automatic air release valve constantly drain off waste gas.
- Electric ball valve can be installed at the bottom of aeration tank, can set regular drain time.
- The filter valve has simple structure and reliable sealing (please refer the filter valve manual).

It adopts hermetic head faces with high degree pottery and corrosion resistance for opening and closing. It combines with service, backwash and fast rinse.

- Reserving the connection port for controlling the water pump and air pump.
- Can choose working mode of time clock type or meter type.

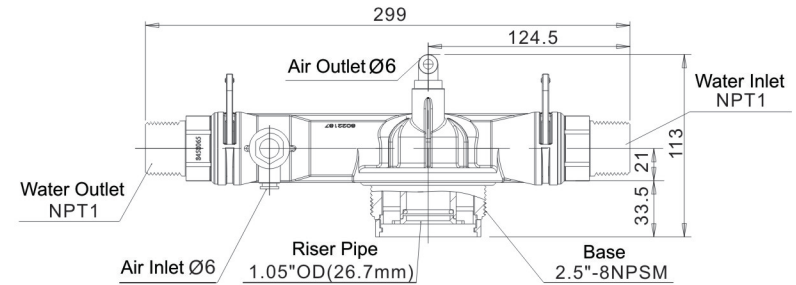
### 1.3. Service Condition

Iron and manganese removal device should be used under the below conditions:

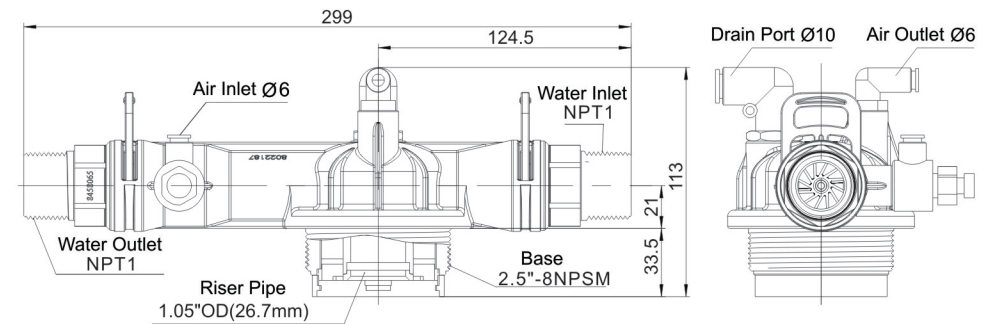
| Items               |                         | Requirement      |
|---------------------|-------------------------|------------------|
| Working conditions  | Water pressure          | 0.15MPa ~ 0.6MPa |
|                     | Water temperature       | 5℃ ~ 25℃         |
| Working environment | Environment temperature | 5℃ ~ 50℃         |
|                     | Relative humidity       | ≤95% ( 25℃ )     |
| Inlet water quality | Iron containing         | ≤25mg/L          |
|                     | Manganese containing    | ≤3mg/L           |
|                     | Water turbidity         | < 15NTU          |
|                     | PH value                | 6.8 ~ 9          |

## 1.4. Product Structure and Technical Parameters

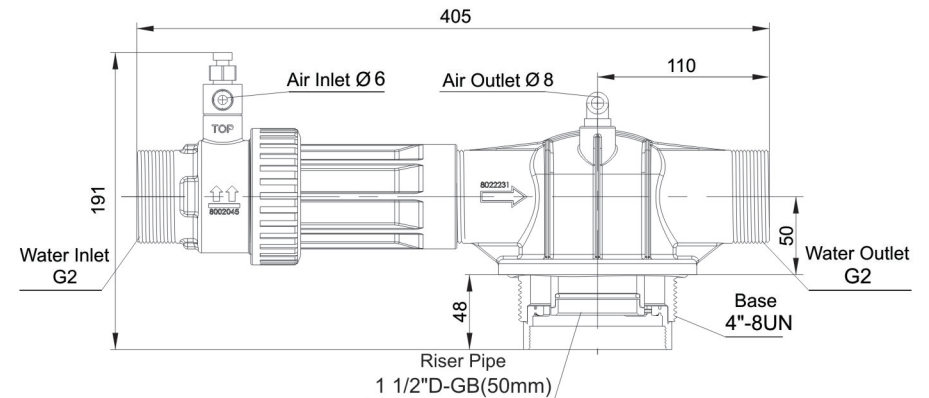
### A. F107B1 aeration device dimensions



### B. F107B2 aeration device (with drain port) dimensions



### C. F107C aeration device dimensions

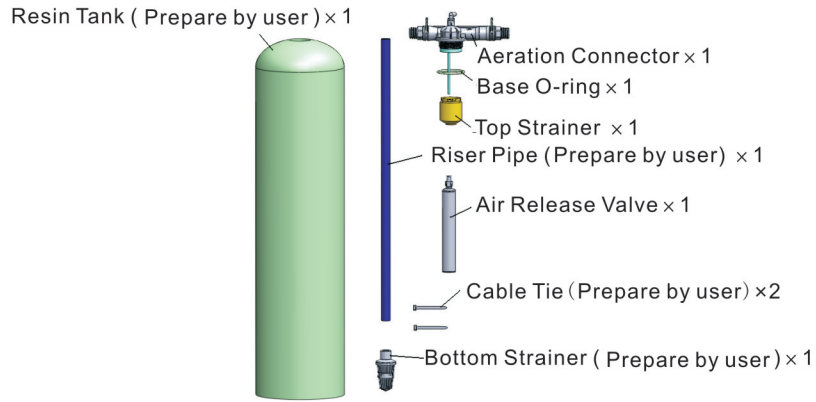


**1.5. Installation (Taking the F107B2 for example)**

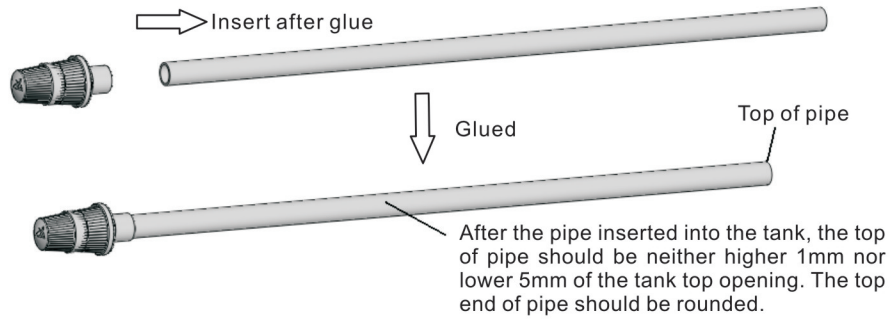
Before installation, please read the "Notice" on page 1.

**A. Install Aeration Tank**

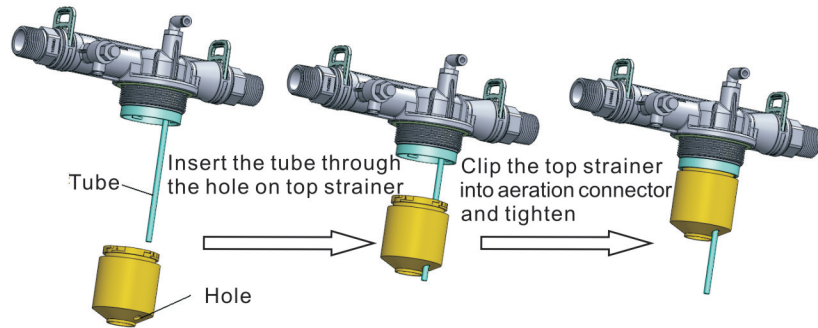
**1). Material confirmation**



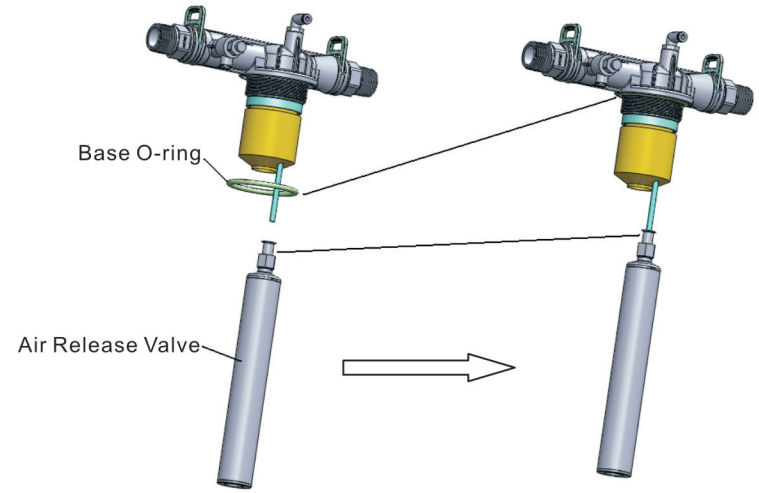
**2). Glue bottom strainer**



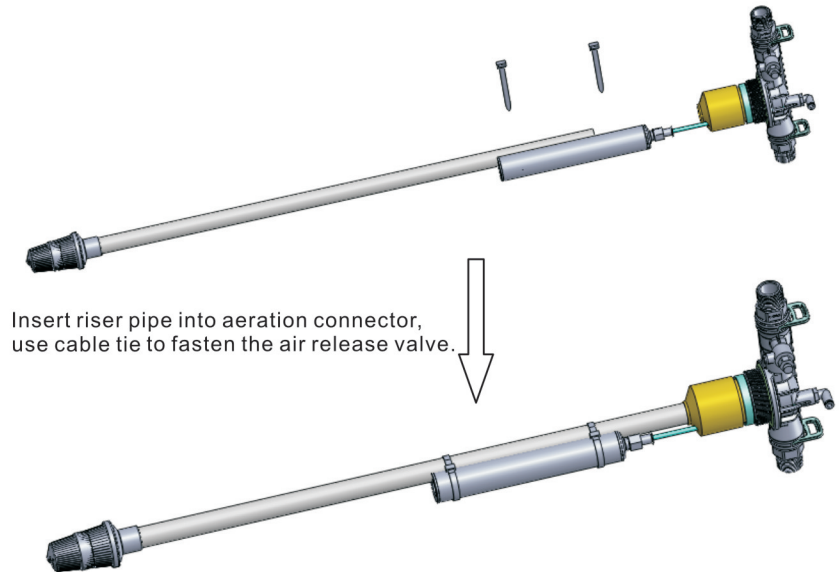
**3). Install top strainer**



**4). Install base o-ring and air release valve**

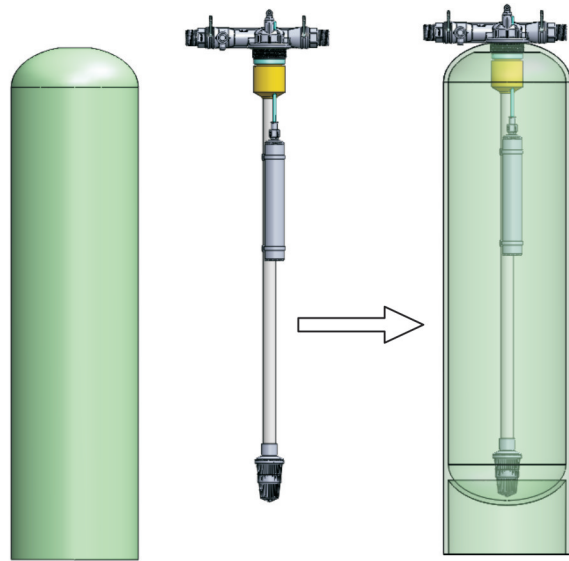


**5). Install riser pipe and fasten air release valve**

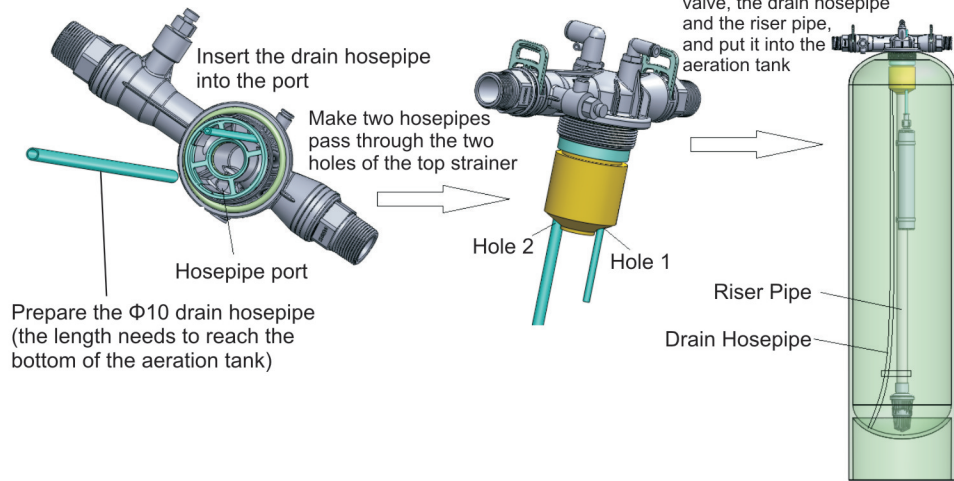




6). Install above components into tank



7). Install drain hosepipe



**B. Install Filter Tank** (please refer the filter valve manual)

**C. Connect aeration tank, filter tank and other accessories**

As Figure 1 shows (back view of system), connect aeration tank, filter tank as well as other accessories(For reference only):

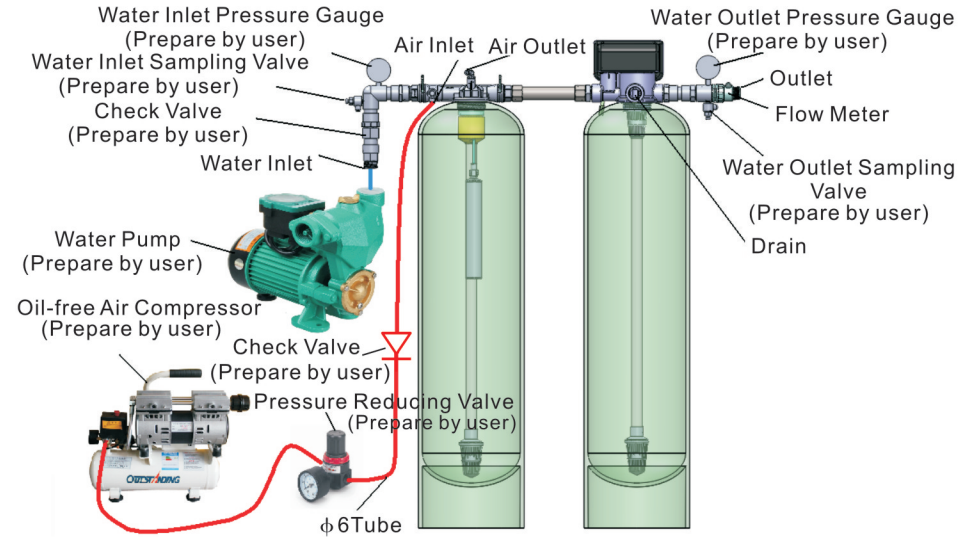


Figure 1

**D. Installation of other optional available accessories**

1). Install air inlet solenoid valve (Normal closed)

As Figure 2 shows, install a two passages solenoid valve on air inlet. When water tank is full of water or equipment stop working or electricity service interrupted, the filter valve program will control the solenoid valve to cut off compressed air goes into aeration tank, preventing the compressed air drain all of water in aeration tank and filter tank.

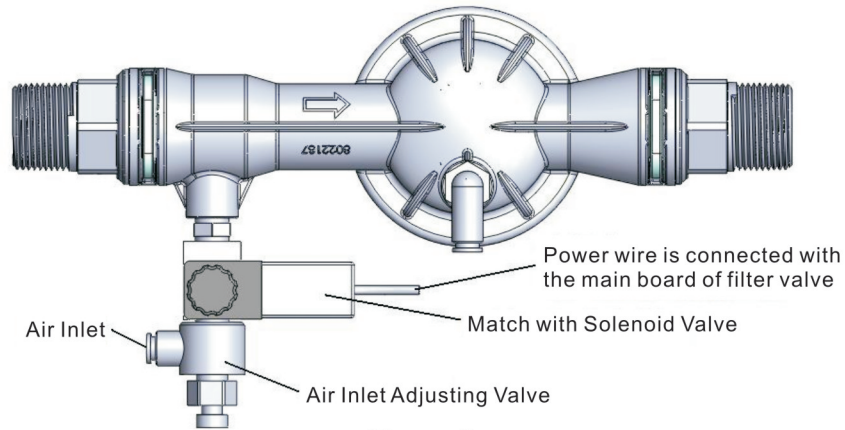


Figure 2

2).Install electronic ball valve at the bottom of aeration tank

Install an electronic ball valve at the bottom of aeration tank, filter valve will control the process and regular drain. It can set up drain time according to the needs, the intelligent program controls the electronic ball valve to drain when the tank is full or electricity service interrupted, which will prevent agglomeration of sediment in the aeration tank when the system shut down for a long time.

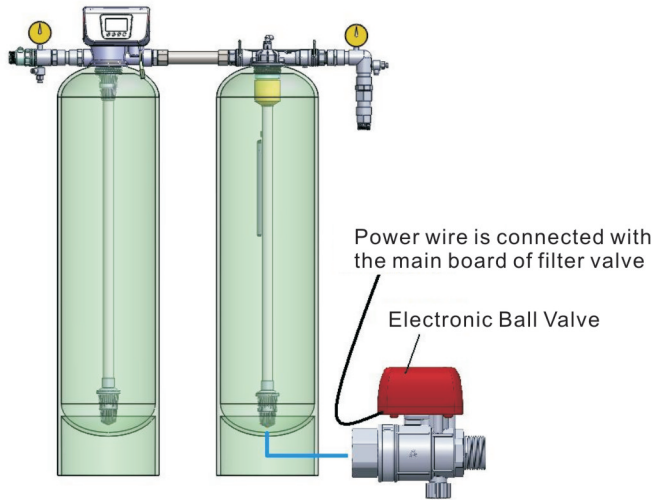
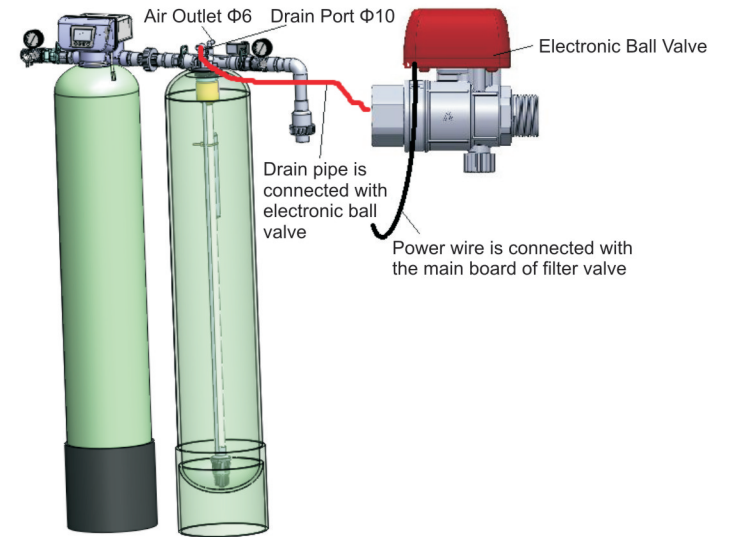


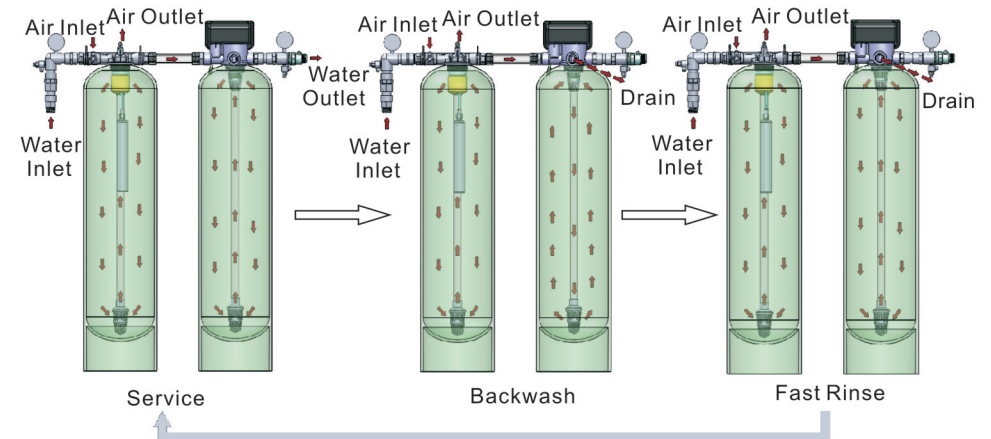
Figure 3

3).Install electronic ball valve at the top of aeration tank (suitable for the F107B2)



2.Applications

2.1.Iron and Manganese Removal Device Flow Chart



**2.2. The Function and Connection of Main Board of Filter Valve**

(please refer the filter valve manual)

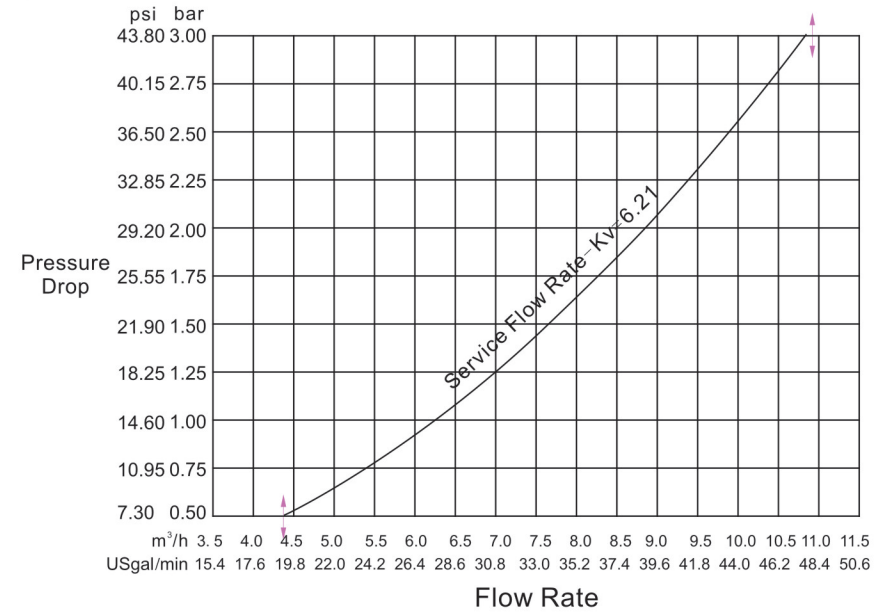
**2.3. System Configuration and Flow Rate Curve**

A. Product configuration with tank, filter material volume and oil free air compressor.

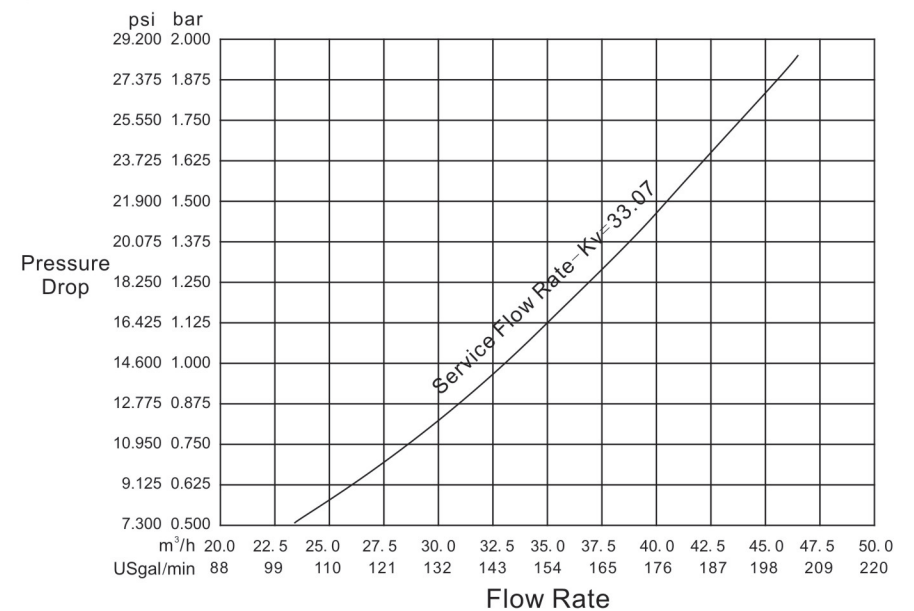
| Item | Water Treatment Capacity (m <sup>3</sup> /h) | Manganese Tank Size | Aeration Tank Size | Oil Free Air Compressor (Power* Tank Volume) | Aeration Device | Inlet Water (MPa) | Backwash Flow Rate (m <sup>3</sup> /h) | Suitable Filter Valve |
|------|--|---------------------|--------------------|--|-----------------|-------------------|--|-----------------------|
| 1    | 1  | 844                 | 844                | 550W×24L                                     | F107B           | ≥0.2              | ≥2.4                                   | F67C3                 |
| 2    | 1.5  | 1054                | 1054               |  | F107B           | ≥0.3              | ≥3.6                                   | F67C3                 |
| 3    | 2  | 1265                | 1265               |  | F107B           | ≥0.4              | ≥4.8                                   | F67C3                 |
| 4    | 3  | 1665                | 1465               | 780W×30L                                     | F107B           | ≥0.4              | ≥8.0                                   | N75B3                 |
| 5    | 3  | 1665                | 1465               |  | F107C           | ≥0.15             | ≥8.0                                   | N75B3                 |
| 6    | 4  | 1665                | 1465               |  | F107B           | ≥0.4              | ≥8.0                                   | N75B3                 |
| 7    | 4  | 1665                | 1465               |  | F107C           | ≥0.15             | ≥8.0                                   | N75B3                 |
| 8    | 4  | 1865                | 1465               |  | F107C           | ≥0.2              | ≥9.5                                   | F75B3                 |
| 9    | 5  | 1865                | 1465               |  | F107C           | ≥0.2              | ≥9.5                                   | F75B3                 |
| 10   | 5  | 2169                | 1865               | 1100W×55L                                    | F107C           | ≥0.15             | ≥15                                    | F95B3/F111B3          |
| 11   | 6  | 2169                | 1865               |  | F107C           | ≥0.15             | ≥15                                    | F95B3/F111B3          |
| 12   | 8  | 2472                | 2169               |  | F107C           | ≥0.2              | ≥20                                    | F95B3/F111B3          |
| 13   | 10   | 3072                | 2169               | 1800W×70L                                    | F107C           | ≥0.4              | ≥30                                    | F95B3/F111B3          |
| 14   | 12   | 3072                | 2169               |  | F107C           | ≥0.4              | ≥30                                    | F95B3/F111B3          |
| 15   | 15   | 3672                | 2169               |  | F107C           | ≥0.4              | ≥44                                    | F112B3                |

B. Flow rate characteristic

1). F107B Pressure-flow rate curve



2). F107C Pressure-flow rate curve






**2.4. Parameter Enquire and Settings**

(Please refer the filter valve manual)


**2.5. Trial Running**

After making sure there is no leakage for all the connections after water pressure test, then set up the backwash time of filter valve as long as possible, and begin trial running according to next steps.

A. Switch on power of filter valve. Press , and go to the Backwash position, the water pump and air pump is in open status.

B. Adjust the compressed air pressure reducing valve, it would be better to let inlet air pressure (check the pressure gauge as shown in Figure 1) be 0.05Mpa lager than inlet water pressure (check the water pressure gauge as shown in Figure 1).

C. Ensure the opening degree of air inlet adjusting valve shown in Figure 2. It can adjust the opening degree based on the iron and manganese removal effect, adjusting the air inlet volume. The opening degree should not be too large, avoiding affecting the inlet water

D. When the drainage water is clear during Backwash, press  and let the valve goes to Fast Rinse position.

E. According to trail running situation, reset each parameter and put and system into service.

**2.6.Trouble-Shooting**

A. Problem from filter valve part, please refer the valve's user manual.

B. Problem from Iron and Manganese Removal Device

|   |  |   |
|---|--|---|
| <p>1. The content of iron and manganese in outlet water is out of limitation.</p> | <p>A. Less air inflow.<br/>B. No compressed air into aeration.<br/>C. High content of iron or manganese in raw water.</p>  | <p>A. Enlarge the opening degree of air inlet adjusting valve.<br/>B. Check if there is air in the air pump. If there is air please turn up inlet air pressure.<br/>C. Use second grade of iron and manganese removal device.</p> |
| <p>2. Low backwash flow rate.</p>   | <p>A. Filter material include tiny filter particles, block top strainer in filter tank.<br/>B. Unreasonable service or backwash parameter setting leads to sediment agglomeration the filter tank.<br/>C. Top or bottom strainer in filter tank is broken and filter valve flow path was blocked by filter material.</p> | <p>A. To upgrade filter material and clean top strainer of filter tank.<br/>B. Change filter material, reset service parameter.<br/>C. Clean filter valve and change top or bottom strainer in filter tank.</p>                   |

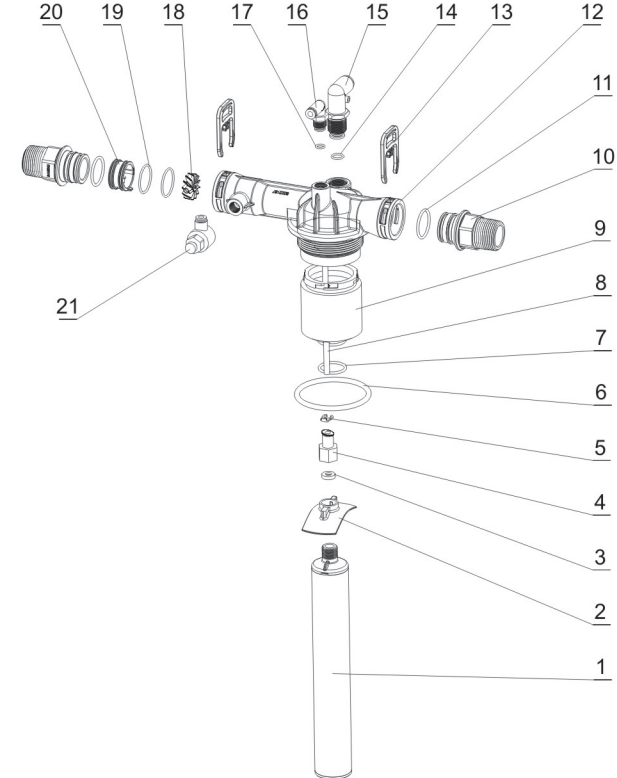
|  |  |  |
|--|--|--|
| <p>3. Low service, fast rinse flow rate.</p> | <p>A. Filter material include tiny filter particles, block bottom strainer in filter tank.<br/>B. Unreasonable service or backwash parameter setting leads to sediment<br/>C. Top or bottom strainer in filter tank is broken and filter valve flow path was blocked by filter material.</p> | <p>A. To upgrade filter material and clean top strainer of filter tank..<br/>B. Change filter material, reset service parameter.<br/>C. Clean filter valve and change top or bottom strainer in filter tank.</p> |
|--|--|--|

Note: In order to ensure the system operate steadily. Please set up reasonable service, backwash parameter, making iron and manganese sediment be timely drained out of the tank.

**2.7 Assembly & Parts**

A. For the filter valve exploded drawing and assembly & parts list, please refer the valve's user manual.

B. F107B1/B2 aeration device exploded drawing

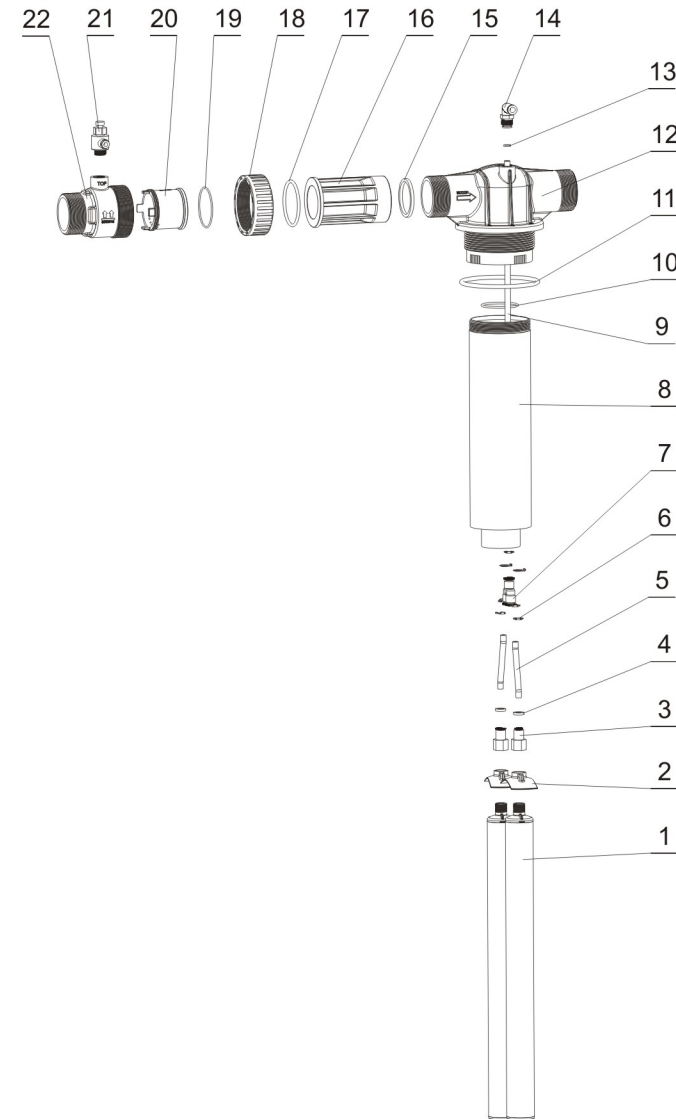




F107B1/B2 Assembly & Parts

| Item No. | Description            |                        | Part No. | Quantity |
|----------|------------------------|------------------------|----------|----------|
| 1        | Air Release Valve      |                        | 5467004  | 1        |
| 2        | Cover                  |                        | 8315105  | 1        |
| 3        | Seal Ring              |                        | 8371011  | 1        |
| 4        | Air Pipe Connector Φ6  |                        | 5455003  | 1        |
| 5        | Clip Φ6                |                        | 8270021  | 1        |
| 6        | O-ring                 |                        | 8378143  | 1        |
| 7        | O-ring                 |                        | 8378078  | 1        |
| 8        | Hosepipe               |                        | 8457095  | 1        |
| 9        | F107B1                 | Top Strainer           | 8339030  | 1        |
|          | F107B2                 |                        | 8339053  | 1        |
| 10       | NPT Connector          |                        | 8458065  | 2        |
| 11       | O-ring                 |                        | 8378081  | 2        |
| 12       | F107B1                 | Valve Body             | 5022081  | 1        |
|          | F107B2                 |                        | 5022140  | 1        |
| 13       | Clip                   |                        | 8270004  | 2        |
| 14       | F107B1                 | O-ring                 | /        | /        |
|          | F107B2                 |                        | 8378196  | 1        |
| 15       | F107B1                 | Hosepipe Connector Φ10 | /        | /        |
|          | F107B2                 |                        | 8457154  | 1        |
| 16       | Hosepipe Connector Φ6  |                        | 8457094  | 1        |
| 17       | O-ring                 |                        | 8378015  | 1        |
| 18       | Impeller               |                        | 5436003  | 1        |
| 19       | O-ring                 |                        | 8378232  | 2        |
| 20       | Air Distributor        |                        | 8339039  | 1        |
| 21       | One-way Throttle Valve |                        | 5467005  | 1        |

C. F107C aeration device exploded drawing



F107C Assembly & Parts:

| Item No. | Description                            | Part No. | Quantity |
|----------|--|----------|----------|
| 1        | Air Release Valve                      | 5467009  | 2        |
| 2        | Cover                                  | 8315105  | 2        |
| 3        | Air Pipe Connector Φ8                  | 5455004  | 2        |
| 4        | Seal Ring                              | 8371070  | 2        |
| 5        | Hosepipe                               | 8457116  | 2        |
| 6        | Clip Φ8                                | 8270022  | 7        |
| 7        | Y-type Three-way Air Pipe Connector Φ8 | 5455007  | 1        |
| 8        | Top Strainer                           | 2976027  | 1        |
| 9        | Hosepipe                               | 8457115  | 1        |
| 10       | O-ring                                 | 8378071  | 1        |
| 11       | O-ring                                 | 8378146  | 1        |
| 12       | Valve Body                             | 5022100  | 1        |
| 13       | O-ring                                 | 8378015  | 1        |
| 14       | Hosepipe Connector Φ8                  | 8457114  | 1        |
| 15       | Seal Ring                              | 8371008  | 1        |
| 16       | Connector                              | 8458016  | 1        |
| 17       | O-ring                                 | 8378137  | 1        |
| 18       | Nut                                    | 8947004  | 1        |
| 19       | O-ring                                 | 8378279  | 1        |
| 20       | Air Distributor                        | 8339037  | 1        |
| 21       | One-way Throttle Valve                 | 5467008  | 1        |
| 22       | Shell                                  | 8002045  | 1        |


3.Warranty Card

Dear client:

This warranty card is the guarantee proof of RUNXIN brand iron and manganese removal device, which 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          |  Iron and Manganese Removal Device |                        |                           |
| 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 first, after got permission, then fill in the below content and send 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 |  |
| Problem Description   |  |                    |  |