



China Patent No.: ZL02220153.X,  
ZL02257746.7

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

51101A (Old Model No.: F52)  
51201B (Old Model No.: F56B)  
51101C (Old Model No.: F56C)  
51102 (Old Model No.: F56E)  
51102C (Old Model No.: F56EC)  
51104 (Old Model No.: F56A)  
51204C (Old Model No.: F56AC)  
51106 (Old Model No.: F56F)  
51110 (Old Model No.: N56D)

## Instruction Manual



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

0WRX.466.523

MODEL: F56A/F56B/F56C/N56D/F56E/F56F/F56AC/F56EC

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

Filter System Configuration

Tank Size: Dia. \_\_\_\_\_mm, Height \_\_\_\_\_mm;

Refilled Filter Materials \_\_\_\_\_Kg,

Granularity of Filter Materials \_\_\_\_\_mm

Control Valve Model \_\_\_\_\_; Number \_\_\_\_\_;

Inlet Water Pressure \_\_\_\_\_Mpa;

Inlet Water Turbidity \_\_\_\_\_NTU.

Water Source: Ground-water ☐ Filtered Ground-water ☐ Tap Water ☐ Other  
\_\_\_\_\_.

Filter Valve Parameter Operated by Manually

Service Time \_\_\_\_\_day

Backwash Time \_\_\_\_\_min.

Fast Rinse Time \_\_\_\_\_min.

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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 filter should be adjusted accordingly.
- Test water periodically to verify that system is performing satisfactorily.
- 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 use the drain pipeline 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 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 carelessness operating may cause the procedure changed.
- We advise you to use M88×2 distributors for N56D top-mounted. It is easy for disassembly.

## Product Overview

### 1.1. Main Application & Applicability

Used for filtration water treatment systems

Be suitable for

Residential filtration system

Swimming pool filtration equipment ( N56D )

Activate carbon and sand filter in RO pretreatment 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 and Fast Rinse.

#### ● Single tank control valve, no water pass the valve in washing.

#### ● Reasonable design of the flow passage.

Service → Fast Rinse → Backwash → Fast Rinse → Backwash → Service

With side-mounted connector to be side mounted the valve. When the TOP side connector with bottom strainer, BOTTOM side connected with top strainer, it could realize up-flow service and could be used in Fe, Mn removal systems.

#### ● Can operate under pressure, no leakage.

### 1.3 Service Condition

Runxin Valve should be used under the below conditions.

Items		Requirement
Working conditions	Water pressure	0.15MPa~0.6MPa
	Water temperature	5℃~50℃
Working environment	Environment temperature	5℃~50℃
	Relative humidity	≤95% (25℃)
Inlet water quality	Water turbidity	<20FTU

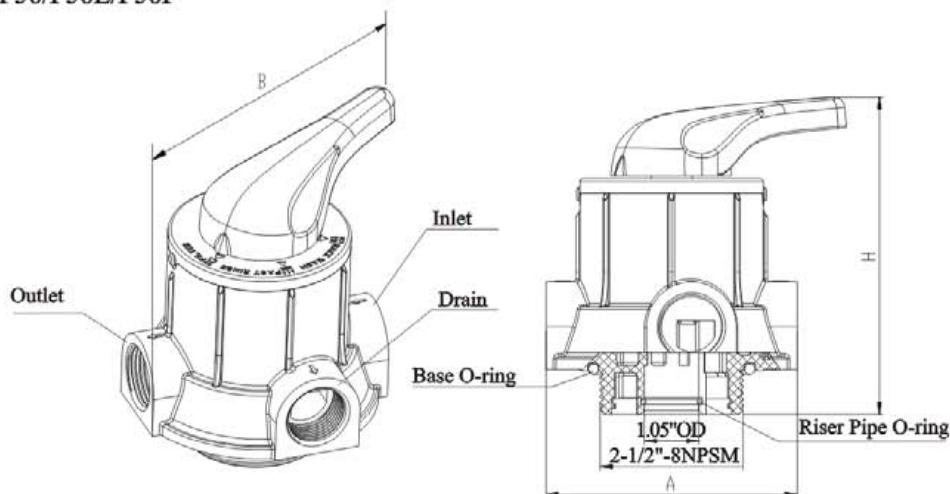
● When the water turbidity exceeds the conditions, a filter should be installed on the inlet of control valve

## MODEL: F56A/F56B/F56C/N56D/F56E/F56F/F56AC/F56EC

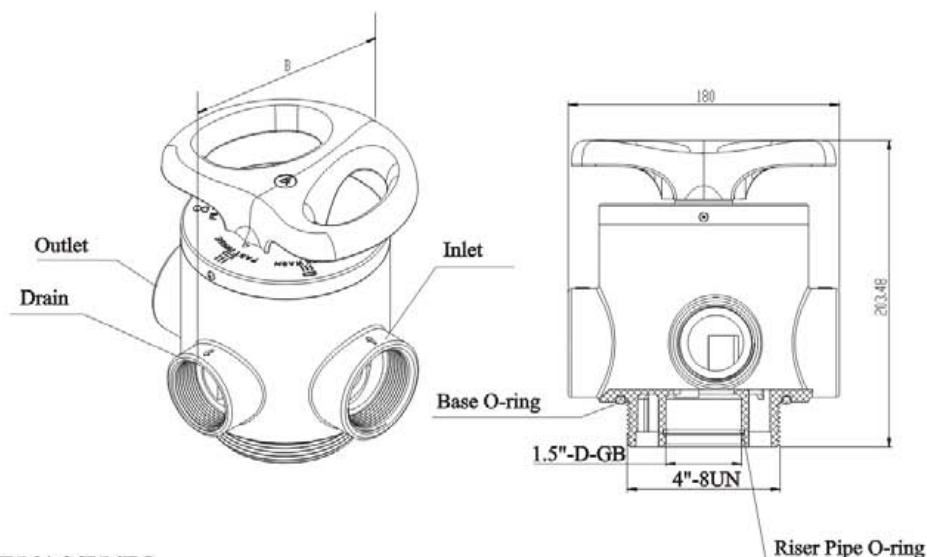
### 1.4 Product Structure and Technical Parameters

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

F56/F56E/F56F



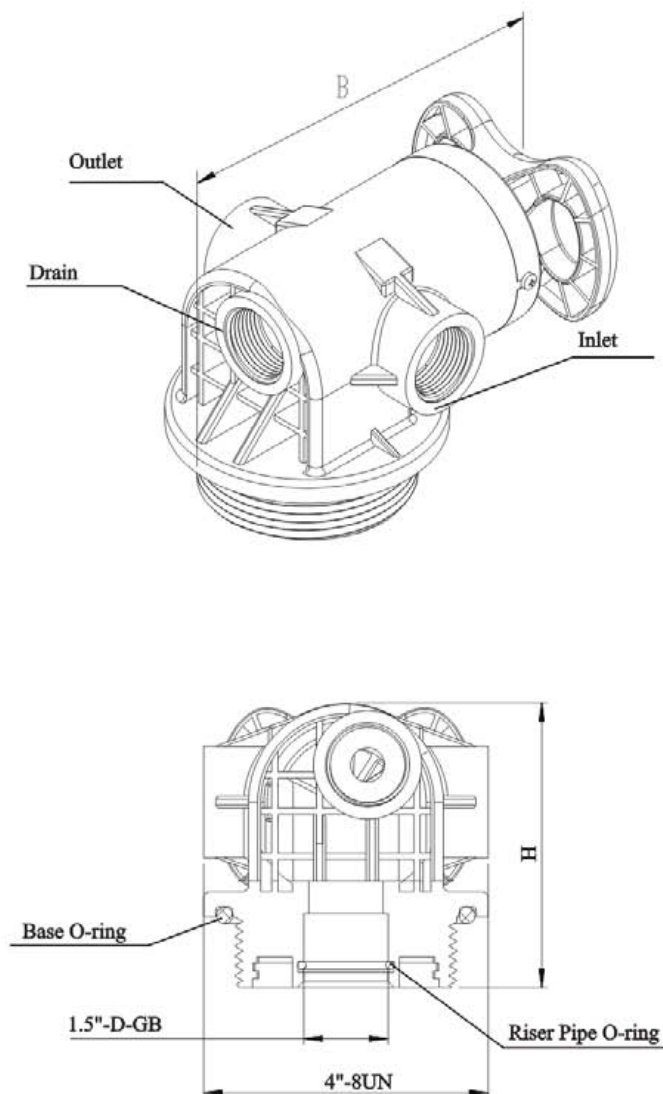
N56D



F56AC/F56EC



MODEL: F56A/F56B/F56C/N56D/F56E/F56F/F56AC/F56EC



MODEL: F56A/F56B/F56C/N56D/F56E/F56F/F56AC/F56EC

## Outer dimension

Model	F56A	N56D	F56E	F56F	F56AC	F56EC	F52
A(mm) max	126	180	92	126	126	92	90
B(mm) max	150	178	130	160	175	135	140
H(mm) max	158	205	140	165	120	92	135

## B. Technical parameters:

Model	Inlet/ Outlet	Drain Outlet	Base	Riser Pipe	Flow Rate m <sup>3</sup> /h	Tank Size (inch)	Remark
F52	1/2" F	1/2" F	M82" 3	Φ 16.5	1	6" ~10"	
F56B	1/2" or 3/4" F	1/2" or 3/4" F	Tr 95×6 or Φ 98 hackle whorl	1.05" OD	1	10" Filter shell	
F56C	1/2" or 3/4" F	1/2" or 3/4" F	Tr 118×6 or Tr 110×6	1.05" OD	1	20" Filter shell	
F56E	1/2" or 3/4" F	1/2" or 3/4" F	2.5" -8 NPSM	1.05" OD	2	6" ~10"	
F56EC	1/2" or 3/4" F	1/2" or 3/4" F	2.5" -8 NPSM	1.05" OD	2	6" ~10"	Side- control led
F56A	1" F	1" F	2.5" -8 NPSM	1.05" OD	4	6" ~12"	
F56AC	1" F	1" F	2.5" -8 NPSM	1.05" OD	4	6" ~12"	Side- control led
F56F	1" F	1" F	2.5" -8 NPSM	1" D-GB	6	6" ~14"	
N56D	2" F	1.5" F	4" -8UM	1.5" D-GB	10	10" ~24"	



MODEL: F56A/F56B/F56C/N56D/F56E/F56F/F56AC/F56EC

**Note: F-Female M- Male OD—Outer diameter; D-GB: Chinese standard**

**The capacity of treated water is relate to the designed flow rate, inlet pressure and filter materials, the above chart for reference only.**

### **1.5. Installation**

#### **A. Installation**

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

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

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

#### **B. Device location**

- ①The filter should be located close to drain.
- ②Ensure the unit is installed in enough space for operating and maintenance.
- ③ The unit should be kept away the heater, and not be exposed outdoor. Sunshine or rain will cause the system damage.
- ④ Do not install the filter , drain pipeline in circumstance which temperature may drop below 5℃, or above 50℃.
- ⑤One place is recommended to install the system which cause the minimum loss in case of water leaking.

#### **C. Pipeline installation (Taking F56A for example)**

##### **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 mineral tank, cut off the exceeding tube out of tank top opening. Plug the riser tube in case of mineral entering.
- b. Fill the filter material to the tank, and the height is accordance with the design code.
- c. Remove the tap covering on the central tube and check if the riser tube is on the central of tank.
- d. Install the top distributor to the valve and insert the riser tube into control valve and screw tight control valve

**Note:**

- The length of riser tube should be neither higher 2mm nor lower 5mm tank top opening height, and its top end should be rounded to avoid damage of O-ring inside the valve.
- Avoid floccules substance together with resin to fill in the tank.
- Avoid O-ring inside control valve falling out while rotating it on the tank

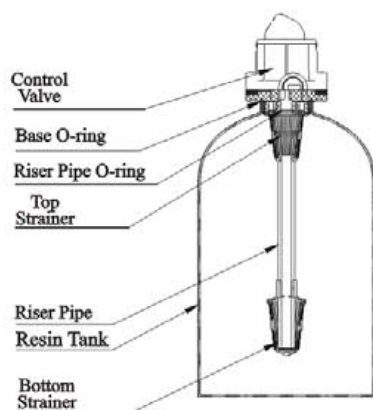


Figure 1-1

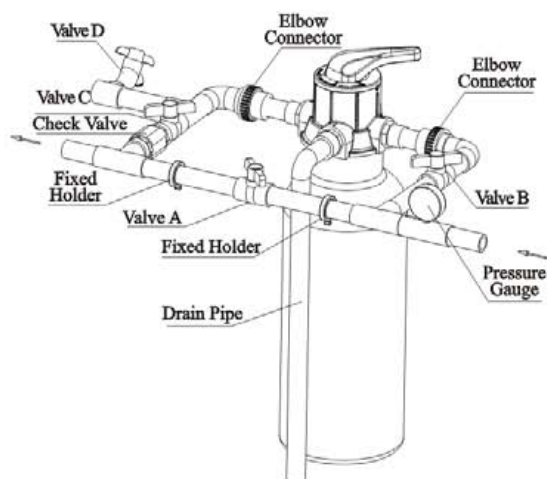


Figure 1-2

**②Pipeline connection**

- a. As Figure1-2 shows, install a pressure gauge in water inlet.
- b. Install valve A, valve B, valve C and valve D in inlet pipeline, outlet pipeline, the middle of the inlet and outlet pipeline. Valve D is sampling valve.
- c. Install a check valve in water outlet
- d. Inlet pipeline should be in parallel with outlet pipeline. Support inlet and outlet pipeline with fixed holder.

**Note:**

**If making a soldered copper installation, do all sweat soldering before connecting**

**pipes to the valve. Torch heat will damage plastic parts.**

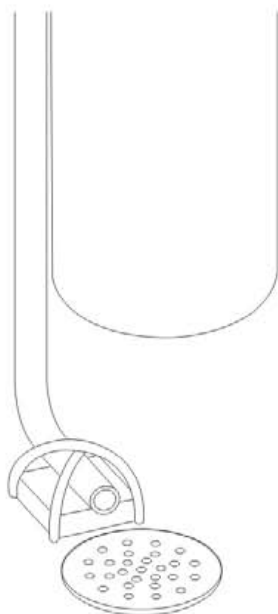
**When turning threaded pipe fittings onto plastic fitting, use care not to cross thread or broken valve.**

**③Install drain pipeline**

Directly connect the outlet with the rigid pipeline, such as UPVC, etc.

**Notes:**

- Control valve should be higher than drain , and be better not far from the drain hose.
- Be sure not to connect drain with sewer, and leave a certain space between them, avoid wastewater be absorbing to the water treatment equipment, such as showed in the Figure1-3.

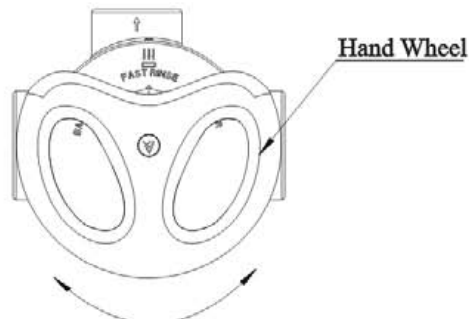
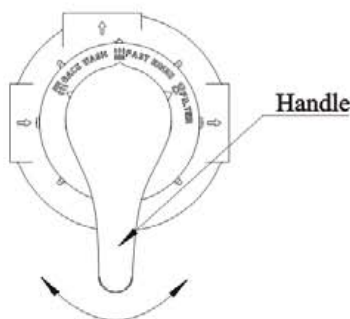


**Figure 1-3**

## Usage

### 2.1. Hand Wheel

This series of control valve is operated by hand wheel to realize service, backwash and fast rinse. As the following pictures show: (The appearance for reference only.)



**Note:** The handle can not be rotated beyond the limit position, please do not flip it up and down.

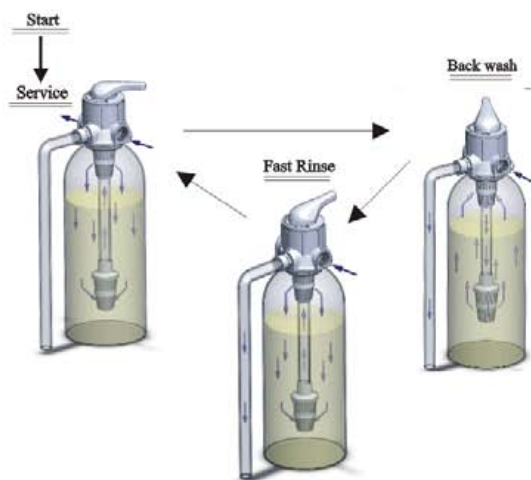
### 2.2. Figure on Decoration Cover and its English Description

English Name	Figure	Description
FILTER		In service ( filtration ) status
FAST RINSE		In Fast rinse status
BACK WASH		In backwash status

## Application

### 3.1. Flow chart

Taking F56A for example, the working theory of the other filter valves are the same as F56A.



### 3.2 System Configuration and Flow Rate Curve

#### A. Product Configuration and Flow Rate Curve

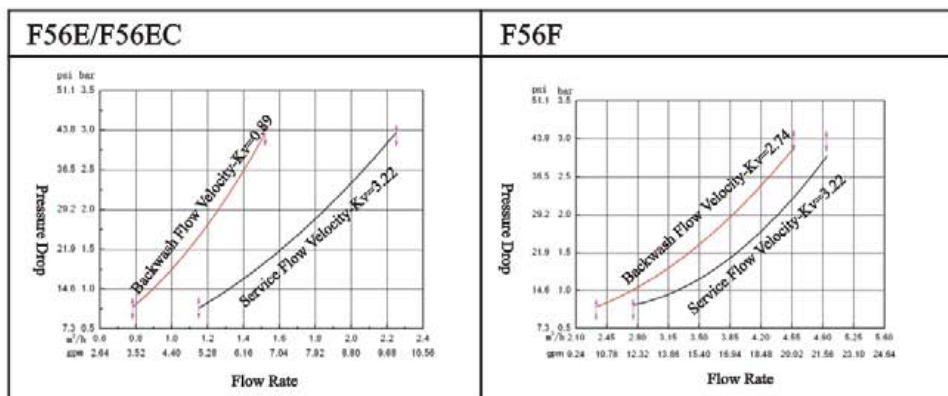
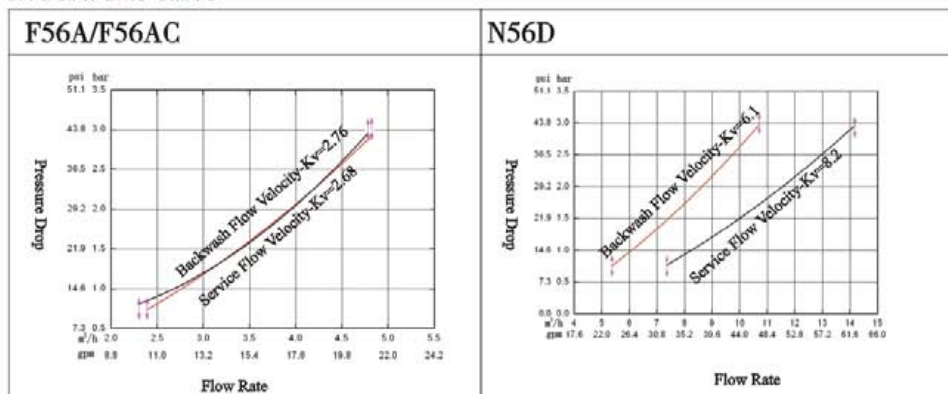
Tank Size					Active Carbon Filter		Sand Filter	
Dia.		Height	Tank Volume	Filter Media Volume	Service Flow Rate	Backwash Flow Rate	Service Flow Rate	Backwash Flow Rate
in	mm	in	L	L	m <sup>3</sup> /h	m <sup>3</sup> /h	m <sup>3</sup> /h	m <sup>3</sup> /h
6	152	35	14.4	10	0.2	0.7	1.0	0.4
7	178	44	25.4	17	0.3	0.9	0.6	5.2
8	203	44	32.9	22	0.4	1.1	0.8	1.7
9	229	48	44.7	30	0.5	1.5	1.0	2.2
10	254	54	65.3	41	0.6	1.7	1.2	2.6
12	305	65	89.2	59	0.8	2.5	1.7	3.8
13	330	54	113.8	69	1.0	3.0	2.1	4.6
14	356	65	150.3	103	1.2	3.4	2.4	5.2
16	406	65	189.6	120	1.5	4.5	3.1	6.8
18	457	65	253	169	2.0	5.9	4.1	8.8
20	508	72	310.5	207	2.4	7.0	4.9	10.6
22	550	72	385	255	2.8	8.5	5.9	12.8
24	610	88	480	320	3.4	10.0	7.0	15.2



# MODEL: F56A/F56B/F56C/N56D/F56E/F56F/F56AC/F56EC

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

## B. Flow rate curve





## **Trial Running**

Fix the valve on the tank, connect all the pipelines, then do as follows:

- A. Close the inlet valve B & C, and open the bypass valve A. After cleaning the impurities in the pipe, close the bypass valve A. (As Figure 1-2 shows, the same as below)
- B. Switch hand wheel to Backwash position. Slowly open the inlet valve B to 1/4 position, making the water flow into the tank; After water stopping flowing, open outlet valve C. You can hear the sound of air-out from the drain pipeline. After all the air is out of pipeline, then close outlet valve (Check if there is leakage. If it is, solve it immediately.) Open inlet valve B completely and clean the impurities in the resin tank until the outlet water is clean. It will take 8 ~ 10 minutes to finish the whole process.
- C. Complete Backwash, switch hand wheel to Fast Rise position start fast rinse about 10 ~ 15minutes.
- D. Take some water for testing, and stop fast rinse if qualified. Then making the control valve return to Service and start to running

### **Instruction:**

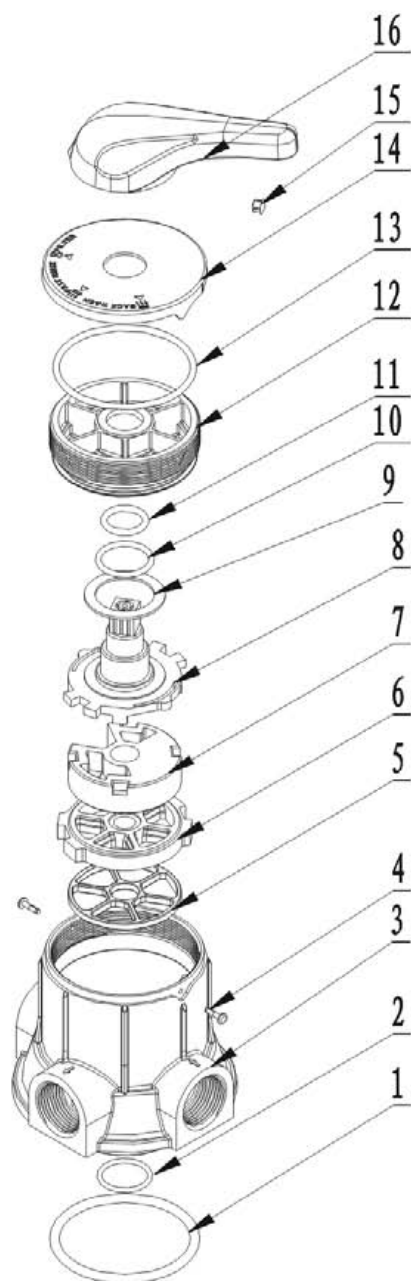
- If the water is too fast, the media of the tank will be lost, If the water is slowly, should be able to hear the sound of air slowly discharged from the drain.
- After replace the filter, follow the step B to operate, discharge air in the filter layer.
- In the process of trial run , check the status of water and there should be no filter leakage
- According to the complete equipment supplier's recommendations to set the residence time in each positions.

### 3.4 Trouble-Shooting

Problem	Cause	solution
1.Filter doesn' t work	Control rale	Control valve
2.Filter supply raw water.	A. Bypass ball valve is openning B. Riser pipe leakage C. Internal of valve body leakage.	A. Close bypass ball valve B. Make sure riser pipe and riser pipe o-ringis not cracked. C. Change valve body.
3.Pressure lost	A. Iron in the water supply pipe. B. Iron mass in the filter.	A. Clean the water supply pipe. B. Clean valve and increase frequency of washing.
4.Filter material expel from drain line.	A. Air in water system. B. Backwash Intensity is too large C. Strainer broken.	A. Assure that exhaust system in normal condition. B. Reduce the backwash intensity C. Replace new strainer.
5.Drain flows continuously	A. Internal valve leakage.	A. Check and repair valve body or replace it.

### 3.5.Valve Body Components

F52, F56A, F56B, F56C, F56E, F56F Valve Body Components

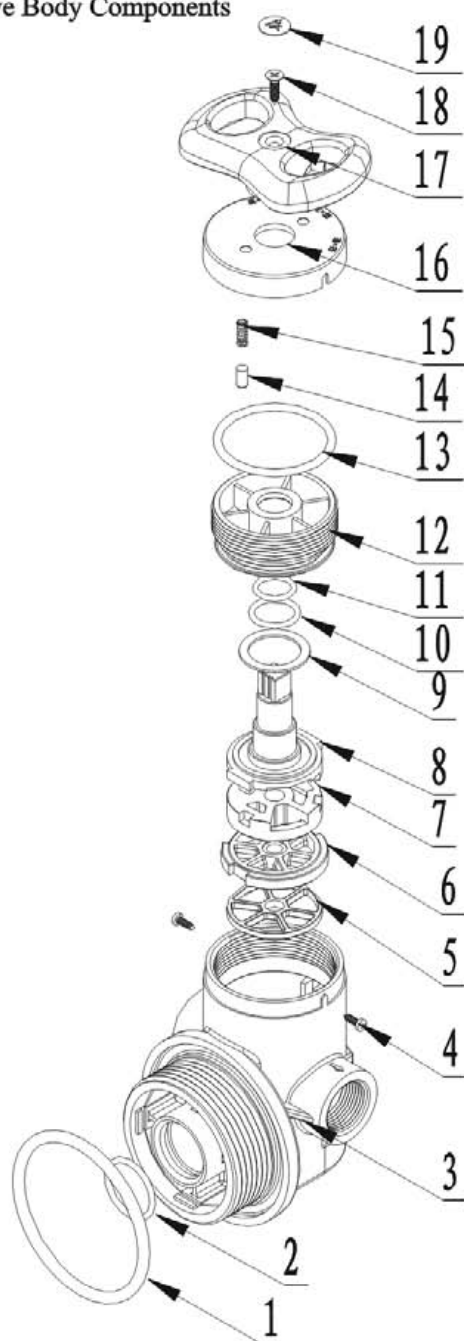


MODEL: F56A/F56B/F56C/N56D/F56E/F56F/F56AC/F56EC**F52, F56A, F56B, F56C, F56E, F56F Valve Body Components**

Item No.	Description	Part NO.						Quantity
		F52	F56B	F56C	F56E	F56A	F56F	
1	O-ring	8371018	/	/	8378143	8378143	8378143	1
2	O-ring	/	8378078	8378078	8378078	8378078	8378065	1
3	Valve Body (ABS+GF10)	8022001	8022013	8022015	8022021	8022002	8022025	1
	Valve Body (PPO+GF20)	/	/	/	/	8022004	8022026	
4	Plastic Pin	/	/	/	/	8993002	8993002	2
	Screw, Cross	8909008	8909008	8909008	8909008	/	/	
5	Seal Ring	8370004	8370004	8370004	8370004	8370005	8370027	1
6	Fixed Disk	8469002	8469002	8469002	8469002	8469003	8469013	1
7	Moving Disk	8459002	8458002	8459002	8459002	8459003	8459014	1
8	Shaft	8258002	8258002	8258002	8258002	8258003	8258006	1
9	Anti-friction Washer	8216002	8216002	8216002	8216002	8216003	8216003	1
10	O-ring	8378050	8378050	8378050	8378005	8378115	8378115	1
11	O-ring	8378048	8378048	8378048	8378048	8378113	8378113	1
12	Fitting Nut	8092002	8092002	8092002	8092002	8092003	8092003	1
13	O-ring	8378105	8378105	8378105	8378105	8378128	8378128	1
14	Decorative Cover	8444002	8444002	8444002	8444002	8444020	8444003	1
15	Decorative Button	8323001	8323001	8323001	8323001	8323001	8323001	1
16	Handle (Metal)	8253002	8253002	8253002	8253002	8253005	8253005	1
	Handle (Plastic)	8253004	8253004	8253004	8253004	8253006	8253006	

MODEL: F56A/F56B/F56C/N56D/F56E/F56F/F56AC/F56EC

F56AC, F56EC Valve Body Components



MODEL: F56A/F56B/F56C/N56D/F56E/F56F/F56AC/F56EC

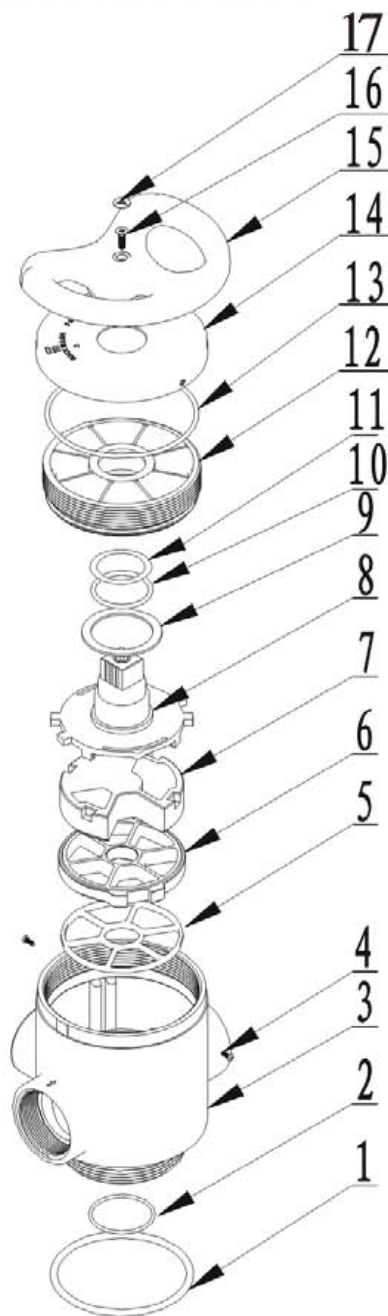
F56AC, F56EC, Valve Body Components

Item No.	Description	Part No.		Quantity
		F56EC	F56AC	
1	O-ring	8378143	8378143	1
2	O-ring	8378078	8378078	1
3	Valve Body	8022027	8022011	1
4	Screw, Cross	8909008	/	2
	Plastic Pin	/	8993002	
5	Seal Ring	8370004	8370005	1
6	Fixed Disk	8469002	8469003	1
7	Moving Disk	8459002	8459003	1
8	Shaft	8258002	8258003	1
9	Anti-friction Washer	8216002	8216003	1
10	O-ring	8378050	8378115	1
11	O-ring	8378048	8378113	1
12	Fitting Nut	8092002	8092003	1
13	O-ring	8378105	8378113	1
14	Locator	8271001	/	1
15	Spring	8282002	/	1
16	Decorative Cover	8444002	8444003	1
17	Handle	8253003	8253007	1
18	Screw, Cross	8909014	8909014	1
19	Brand	8860001	8860001	1



## MODEL: F56A/F56B/F56C/N56D/F56E/F56F/F56AC/F56EC

### N56D Valve Body Components




Item No.	Description	Part NO.	Quantity
1	O-ring	8378146	1
2	O-ring	8378071	1
3	Valve Body	8022019	1
4	Screw, Cross	8909008	2
5	Seal Ring	8370014	1
6	Fixed Disk	8469009	1
7	Moving Disk	8459009	1
8	Shaft	8258018	1
9	Anti-friction Washer	8216007	1
10	O-ring	8378123	1
11	O-ring	8378118	1
12	Fitting Nut	8092021	1
13	O-ring	8378133	1
14	Decorative Cover	8444004	1
15	Handle	8253041	1
16	Screw, Cross	8909020	1
17	Brand	8860001	1

## 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	 <b>Multi-functional Flow Control Valve for Water Treatment Systems</b>
Model	Code of Valve Body
Purchase Company Name	Tel/Cel.
Problem	
Solution	
Date of Repairing	Date of Accomplishment
	Maintenance Man Signature

When product need warranty service, please fill in the below content and sent this card together with the product to the appointed suppliers or Runxin company.

End-user Company Name	Tel/Cel.
Purchase Company Name	Tel/Cel.
Model	Code of Valve Body
Tank Size $\phi$ ×	Filter Material Kg
Water Source: Ground-water <input type="checkbox"/> Tap Water <input type="checkbox"/>	
Service Time D or h	Backwash Time min
Fast Rinse Time min	
Problem Description	



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