



# Installation, Operation & Maintenance Manual

-Two position three-way valve





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For more information, please visit: [www.kangjiezc.com](http://www.kangjiezc.com)

Service Hotline: 400-018-1832

Tel: 010-69730336

E-mail: mail.kangjiezc.com




Beijing Kangjie Zhichen water treatment Co.,Ltd



## A、 Introduction

### A1、 Symbols used

Three symbols in the manual each indicate are as follows:

	Forbidden: ...must be strictly adhered to.
 XXXXXX	Warning: ...important safety information. If no followed, could endanger personal safety and/or mechanical damage.
	Attention: ...important operating tips

### A2、 Functionality

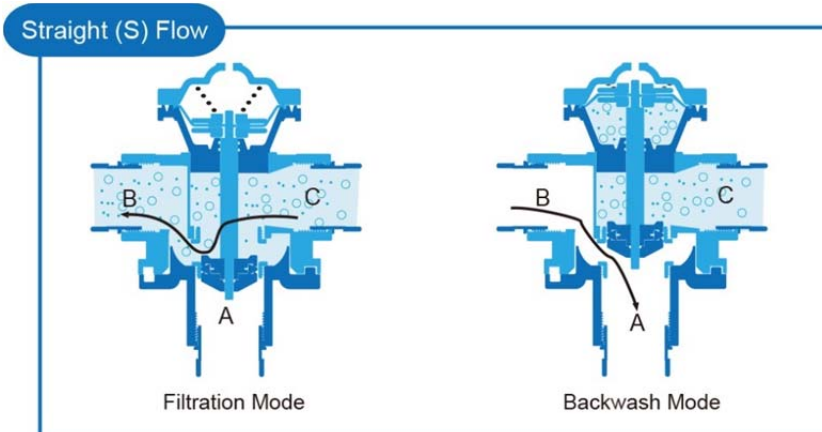
Two-position three-way valve is piped to achieve a rapid path switching under the allowable pressure and temperature.

	<ol style="list-style-type: none"><li>1. Avoid installations where containing HF solutions.</li><li>2. This product can be used in a small amount of organic liquid containing grease and ethanol. For specific instruction, please negotiate with the agent before making any decision.</li><li>3. This product can provide certain resistance to corrosion caused by acid and alkali. The final result is determined by sample testing.</li><li>4. Do not use control valve to start or close the system in case of containing a large amount of solid contaminants in medium, as the product is controlled by differential pressure. Using a clean media to control the valve is highly recommended.</li></ol>
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Our company assumes no responsibility for any loss and damage caused by objectives inconsistent with intended use.

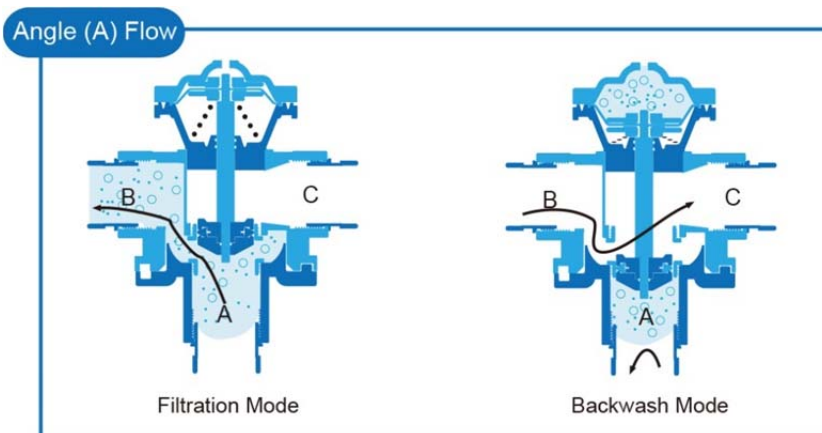
Regarding to different design purpose, there are two types of two-position three-way valve, namely S-type and A-type.

#### 1. Technical principles of Straight(S)-type valve



As to S-type valve, the diaphragm controlled by a spring rest on the head of valve has been designed to serve as the seat seal . When diaphragm move downward in normal state, the port (B) is connected to the port (C). When pressurized in lower cavity, the diaphragm move in the opposite direction, then the path BC is shut off and path AB is connected.

## 2. Technical principles of Angle(A)-type valve



As to A-type valve, the diaphragm controlled by a spring rest on the head of valve has been designed to serve as the seat seal . When diaphragm move upward in normal state, the port (A) is connected to the port (B). When pressurized in upper cavity, the diaphragm move downward, then the path AB is shut off and port B is connected to port C instead.

### A3、Marks


Install valve with the proper ports as inlets and outlets. Flow direction arrows must be correct when installation.



#### A4、Transport and storage


Transport rules can be explained as follows:

- Keep the valve in the original packaging before use.
- The valve must be stored in dry, dust-proof and avoiding meeting-up conditions.

	<ol style="list-style-type: none"><li>1. When transporting and storing the valve, make sure that there is no heavy load on the valve body.</li><li>2. Avoid shipping condition where valve may be exposed to vibration, or high traffic areas with potential for mechanical damage.</li></ol>
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## **B、Installation/Pressure test**

#### B1、Before you begin

	<ol style="list-style-type: none"><li>1. Professionals, who have full capability of the correct completion of the installation and operation work and to detect and resolve any risks based on their own training, expertise and experience, must be on-site when operating and responsible for any operation to the valve.</li><li>2. The function of the valve must match the intended use of the system.</li><li>3. Make sure no pressure on both sides of pipe prior to the completion of installation.</li></ol>
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#### B2、Installation requirements

Many precautions can be taken to prevent the malfunctioning of the valve before installation.

Please be noted

	<ol style="list-style-type: none"><li>1. Avoid installations where valve may be exposed to vibration, or high traffic areas with potential for mechanical damage.</li><li>2. The valve will only close tightly in the direction of flow. Flow in the opposite direction to the arrow may irreparably damage components.</li><li>3. The valve assembly will require heat shielding, thermal isolation, or cooling.</li><li>4. Recommend for vertical supporting heavy load (valves) if necessary.</li><li>5. Poor water treatment or filtration, corrosion, scale, other particulate can result in damage to trim components or water leakage. A water treatment specialist should be consulted.</li><li>6. Dirty conditions lead to malfunction, so fit strainer upstream of valve inlet if necessary.</li><li>7. Valve should be mounted properly, especially in the joints, to avoid water leakage caused by uneven/over tightening.</li></ol>
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### B3、Installation steps

- Inspect shipping package, valve for physical damage. If damage has occurred notify appropriate carrier and manufacturer. Do not install.
- Install valve with the proper ports as inlets and outlets: flow direction arrows must be correct.
- Check for any sharp-edge particles that can become lodged in trim components.
- All pipes and valves should be cleaned thoroughly after installation.
- Remove any sludge, gravel or metal particles. Make sure the system is clean and free of dirt before closing the system.
- Start functional testing as soon as possible. If the valve fails to perform in default, require timely replacement to avoid any loss in debugging.

### B4、Pressure test

All valves are factory tested for pressure test. Check the pressure supplied to the valve and ensure that pressure applied over a specified range.

	Slowly open the valve to prevent water hammer(a pressure surge) from damaging pipes and valves when initiate pressure test.
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	As the water pressure increases, firstly detect water leakage. If necessary, stopping the test can help prevent human injuries and damage to the system.
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### B5、Valve dismantling

For detailed explosive view, Please go to our website to download:

[www.kangjiezc.com](http://www.kangjiezc.com)

## **C Operation instruction**

The system designer must fully evaluate and check system security before starting installation.

### C1、Safety instructions

	<ol style="list-style-type: none"><li>1. The function of the valve must match the intended use of the system.</li><li>2. Working temperature and working pressure can only be used within the range specified by the valve.</li><li>3. Professionals, who have full capability of the correct completion of the installation and operation work and to detect and resolve any risks based on their own training, expertise and experience, must be on-site when operating and responsible for any operation to the valve.</li><li>4. Make sure no pressure on both sides of pipe before installation.</li><li>5. When the pipe is pressurised for the first time, if leakage is suspected, tightly and alternative tighten bolts, to avoid over-tightening a coupling and excessive damage to valves.</li></ol>
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### C2、Manual/Automatic Operation

The valve is in an open position when the diaphragm bulge outwardly. When recessed, the valve is closed.

For regular diaphragm valve, detecting water sound in pipeline outlets helps determine the location of valve, or observe top or side vent holes to ensure proper valve capacity and flow response.

### C3、Troubleshooting

Leakage at the pipe joints	Please check the washer coupling at the junction.
Valve switch in wrong position	Firstly determine whether the pressure is insufficient; secondly, remove foreign matter stuck in the end of the valve stem and clean pipes and valves. If the problem persists, please contact the manufacturer.

## D Technical annex/Documents

### D1、Technical specifications

- Working pressure: 0.2-1.0MPa
- Working temperature: <65°C
- 3-way solenoid valve specifications:
  - AC220V 50HZ 8W
  - AC110V 50HZ 8W
  - AC24V 50HZ 8W
  - DC220V 50HZ 8W
  - DC110V 50HZ 8W
  - DC24V 50HZ 8W

### D2、Flow curve

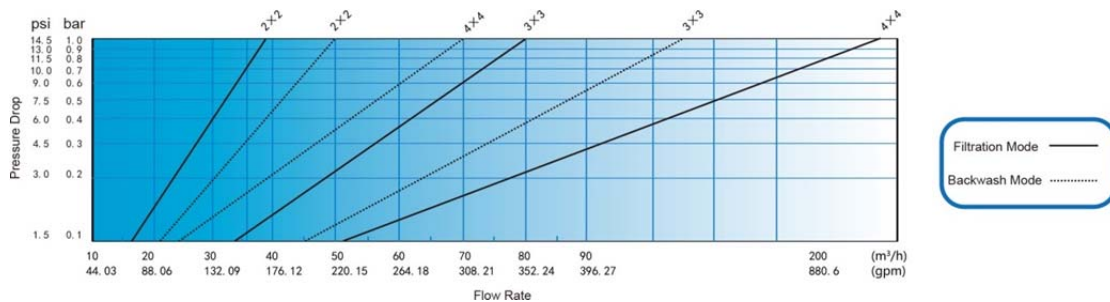


Fig. 1 Flow curve



D3、Drawing/material lists

Please visit below website for downloading:

[www.kangjiezc.com](http://www.kangjiezc.com)

D4、Standard flange bolts

For flange connection bolt specification and related operating instruction, please visit below website:

[www.kangjiezc.com](http://www.kangjiezc.com)