

The following is the relevant introduction of the 400X flow control valve:

### **Product Introduction**

- **Working Principle:** When water is supplied from the inlet end of the valve, the water flows through the needle valve into the main valve control chamber, and then flows out of the main valve control chamber to the outlet through the pilot valve and the ball valve. At this time, the main valve is in a fully open or floating state. By adjusting the flow control valve on the upper part of the main valve, a certain opening degree can be set for the main valve. By adjusting the opening degree of the needle valve and the pressure of the pilot valve spring, the opening degree of the main valve can be maintained at the set value. When the pressure changes, the pilot valve will automatically adjust to keep the flow rate constant.
- **Structural Composition:** It consists of a main valve, a flow control valve, a needle valve, a pilot valve, a ball valve, a micro filter, and a pressure gauge to form a hydraulic control pipeline system.
- **Material Selection:** The valve body materials can be selected from cast iron, ductile iron, cast steel, stainless steel, etc., which are suitable for different working environments and medium requirements.
- **Scope of Application:** It is suitable for the water supply system where fire water is parallel to domestic water, as well as the water supply pipeline systems of high-rise buildings, living areas, etc., and urban water supply projects, used to control and regulate the flow rate and pressure in the pipeline.

### **Typical Installation Schematic Diagram**

Generally, the 400X flow control valve should be installed on a horizontal pipeline, and the inlet and outlet directions of the valve should be consistent with the water flow direction. A certain length of straight pipe sections should be installed upstream and downstream of the valve to ensure the stability of the water flow. At the same time, pressure gauges can be installed before and after the valve as needed to monitor the pressure changes. In the pipeline system, a filter should also be considered for installation to prevent impurities from entering the valve and affecting its normal operation. Since no specific graphic is available, you can refer to the relevant valve installation manual or request a detailed installation schematic diagram from the manufacturer.

### **Maintenance and Troubleshooting**

- **Maintenance**
  - **Regular Inspection:** Regularly check the sealing performance of the valve, the wear condition of components, and whether the control pipeline is normal to ensure the normal operation of the valve.
  - **Cleaning and Maintenance:** Keep the surface of the valve clean to prevent the accumulation of impurities. Regularly clean the micro filter to avoid blockage that may affect the flow control.
  - **Lubrication Treatment:** Appropriately lubricate the moving parts of the valve to ensure their flexible operation. A suitable lubricant can be applied to the relevant parts.
- **Troubleshooting**
  - **Unstable Flow Rate:** It may be that the opening degrees of the needle valve

or the pilot valve are improperly set, and the opening degree of the needle valve and the pressure of the pilot valve spring need to be readjusted. It may also be that there are impurities in the pipeline affecting the operation of the valve, so it is necessary to check and clean the impurities inside the pipeline and the valve.

- **The Valve Cannot Open or Close Normally:** Check whether the control pipeline is blocked or leaking, and repair or replace it in time if there is a problem. At the same time, check whether components such as the main valve and the pilot valve are damaged, and replace the corresponding components if they are damaged.
- **Poor Sealing:** Check whether there is wear, scratches, or impurity adhesion on the sealing surface, and repair or replace the sealing parts if there is any problem.

#### **Performance Characteristics**

- **High-precision Flow Control:** It adopts a high-precision pilot control method for flow rate, which can accurately maintain the flow rate at the predetermined value and is not affected by the pressure changes upstream of the main valve.
- **Multifunctionality:** It has multiple functions such as flow control and pressure regulation, and can meet the needs of the system under different working conditions.
- **Energy-saving and High-efficiency:** Different from the principle of a conventional throttle valve, it uses the relevant pilot valve to minimize the energy loss during the throttling process and achieve energy-saving operation.
- **High Reliability:** It has high control sensitivity, is safe and reliable, is easy to debug, has a long service life, and reduces the maintenance and replacement costs.
- **Self-powered Control:** It uses hydraulic self-powered control without the need for other devices and energy sources, reducing the complexity and operation cost of the system.

