The following is the relevant information about the JD745X multi-functional water pump control valve:

Product Introduction

- **Structural Composition**: It is composed of a main valve, a regulating valve, and a connecting pipe system. The valve body adopts a direct-flow valve body, and the main valve control chamber has a double-control chamber structure of a diaphragm type or a piston type, which increases the control function of the main valve.
- **Working Principle**: After the water pump is started, the water pressure makes the main valve open. The water in the upper chamber of the control room is slowly discharged to the outlet end through the regulating valve B, and the main valve opens slowly. After the water pump stops working, the water pressure at the inlet end drops rapidly. The main valve quickly closes most of its opening under the action of its own weight and spring pressure to prevent the backflow of water. The remaining opening is slowly closed under the combined action of the water pressure in the upper and lower chambers of the control room, forming a buffer.
- **Application Scenarios**: It is used on the outlet pipelines of water pumps in high-rise building water supply systems and other water supply systems to prevent and reduce the water hammer and water shock of the pipelines when the water pump is started and stopped, prevent the backflow of water to protect the water pump, and maintain the safety of the pipeline.

Typical Installation Schematic Diagram

It is usually installed at the outlet end of the water pump and connected to the pipeline by flanges. When installing the valve, it should be ensured that its installation direction is consistent with the water flow direction, and enough space should be reserved around it for easy operation and maintenance. Generally, gate valves or butterfly valves are installed before and after the valve to cut off the water flow during maintenance. At the same time, in order to protect the valve and the pipeline system, a filter can be installed at the inlet end of the valve to prevent impurities from entering the valve and affecting its normal operation. In addition, a pressure gauge may also be installed to monitor the pressure in the pipeline. Since the products of different manufacturers may vary in structure and size, the specific installation schematic diagram should refer to the product instruction manual or the technical information provided by the manufacturer.

Maintenance

- **Regular Inspection**: Regularly check all components of the valve, including the main valve, regulating valve, diaphragm, piston, spring, etc., to check for signs of wear, corrosion, aging, or damage.
- **Cleaning Components**: Regularly clean the inside of the valve to remove impurities, dirt, and rust. Especially, pay attention to cleaning key parts such as the valve seat and valve core of the main valve to ensure the cleanliness and smoothness of the sealing surface.
- **Check Sealing Performance**: Check whether the sealing parts such as the diaphragm and O-ring are damaged or aged. If damaged, replace them in a timely manner to ensure the sealing performance of the valve.
- **Lubrication Maintenance**: Although the valve is a water self-lubricating valve body,

for some moving parts such as the shaft core, a small amount of lubricating grease can be applied appropriately to ensure their flexible movement.

- **Inspect Connection Parts**: Check the flange connection parts of the valve and the connection parts of the control pipeline to ensure that the bolts are tightened and there is no looseness or leakage.

Troubleshooting

- **No water output or insufficient water output**
  - **Reasons**: The pump has not been primed or not filled with enough water; The foot valve is rusty; The internal sealing performance is poor or the components are loose; The installation distance is too close; The valve is worn.
  - **Solutions**: Open the valve to prime or fill it with water; Replace or repair the foot valve; Check and repair the sealing parts, and tighten the loose components; Adjust the installation distance; Repair or replace the worn components.
- **Abnormal noise during operation**
  - **Reasons**: The valve operates unbalanced and generates vibration; The screws are loose; The gasket is too thin; The internal operation has poor lubrication.
  - **Solutions**: Check the installation and operation of the valve and adjust it to make it balanced; Tighten the screws; Replace the gasket with a suitable one; Check the internal lubrication condition and add lubricant if necessary.
- **The bearing is overheating**
  - **Reasons**: The lubricating oil is of poor quality; Water is mixed into the lubricating oil; The belt is too tight.
  - **Solutions**: Replace the lubricating oil with a good-quality one; Remove the water from the lubricating oil and replace the lubricating oil if necessary; Adjust the tightness of the belt.
- **The power machine emits black smoke or cannot drive the valve**
  - **Reasons**: The rotational speed of the valve exceeds the rated rotational speed; The total head is much lower than the head at the rated rotational speed; There are impurities in the water.
  - **Solutions**: Adjust the rotational speed of the valve to the rated rotational speed; Check the head condition and adjust the system parameters if necessary; Install a filter to filter the impurities in the water.

Performance Characteristics

- **Good water hammer elimination effect**: It integrates the technologies of slow opening, check rapid closing, and slow closing for water hammer elimination, effectively preventing the damage of the water supply pipeline and the water pump caused by the water hammer during pump start-up and the backflow and water hammer during pump stop.
- **Convenient operation**: There is no need to equip the valve with an additional electrical control system. The valve automatically and sequentially completes the control function with the start and stop of the water pump, and appropriate control parameters can be obtained by setting the opening of the regulating valve.
- **Small hydraulic loss**: The valve body adopts a full-channel, direct-flow, and

streamlined design, with small volume, light weight, and good energy-saving effect.