The following is the content about the triple-eccentric metal hard-sealing butterfly valve, including its product introduction, typical installation schematic diagram, maintenance and troubleshooting, as well as performance characteristics:

## **Product Introduction**

The triple-eccentric metal hard-sealing butterfly valve is a high-performance valve, mainly composed of key components such as the valve body, butterfly disc, valve stem, and sealing pair.

- Valve Body: Usually made of high-strength cast steel or stainless steel, it has good compressive strength and corrosion resistance, and can adapt to various harsh working environments. It ensures that the valve will not be damaged by medium erosion or pressure during long-term use.
- **Butterfly Disc**: Made of high-quality metal materials, such as stainless steel or alloy steel, and through precision machining and special surface treatment to improve its hardness and wear resistance. The butterfly disc is closely connected to the valve stem, and the opening and closing action of the butterfly disc in the valve body is realized through the rotation of the valve stem, thus controlling the flow of the medium.
- Valve Stem: Made of corrosion-resistant and high-strength stainless steel materials, it can not only withstand a large torque but also ensure that it will not be deformed or corroded during long-term use, ensuring the stable operation and accurate control of the valve.
- Sealing Pair: This is the core component of the triple-eccentric metal hard-sealing butterfly valve, composed of a metal sealing ring and the sealing surface on the butterfly disc. Special alloy materials are used, which have extremely high hardness and wear resistance. The triple-eccentric design makes the contact mode between the sealing surfaces more reasonable during the opening and closing process of the butterfly disc, effectively reducing friction and wear, and at the same time ensuring good sealing performance. It can achieve bidirectional sealing under harsh conditions such as high pressure and high temperature.

# Typical Installation Schematic Diagram

plaintext



Pipeline	

<-- Bolt connection of flanges -->

Installation Key Points:

- The valve should be installed in a position in the pipeline system that is easy to operate and maintain. Generally, a horizontal pipeline is preferred. If it is installed on a vertical pipeline, it is necessary to ensure that the medium flow direction conforms to the requirements marked on the valve.
- Before installation, the inside of the pipeline must be thoroughly cleaned to remove debris, welding slag, etc., to prevent them from entering the valve and damaging the sealing surface or affecting the normal operation of the valve.
- Ensure that the flanges of the valve are accurately aligned with the pipeline flanges, and use appropriate bolts to tighten evenly to ensure a tight connection without leakage. At the same time, pay attention to check whether the valve is subjected to additional external forces during the installation process to avoid deformation of the valve.
- If the valve is equipped with an actuator, such as an electric or pneumatic actuator, it should be installed and debugged according to the corresponding installation instructions to ensure a firm connection between the actuator and the valve and coordinated operation.

### Maintenance and Troubleshooting

### • Maintenance

- Regularly check the sealing performance of the valve, and it can be detected for leakage through methods such as pressure testing. If leakage is found, it is necessary to find the cause in time. It may be caused by problems such as damage to the sealing surface or loosening of the flange connection.
- Regularly add an appropriate amount of lubricant to the moving parts of the valve, such as the valve stem and bearings, to reduce friction and ensure the flexibility and smoothness of the valve operation. At the same time, check whether these parts are worn, corroded, etc., and replace them in time if damaged.
- Clean the dust, oil stains and other impurities on the surface of the valve to keep the valve clean in appearance. For valves exposed outdoors or in harsh environments, appropriate protective measures can be taken, such as painting, wrapping, etc., to prevent the valve from rusting or being eroded by other substances.
- Check the operation status of the actuator, including the electrical system, pneumatic system (if applicable), etc., to ensure its normal operation. Regularly clean, calibrate and maintain the actuator to ensure its control accuracy and reliability.

# • Troubleshooting

- Sealing Leakage: First, check whether there are scratches, wear, deformation or impurity adhesion on the sealing surface. If so, the sealing parts can be repaired or replaced according to the degree of damage. At the same time, check whether the flange connection bolts are loose, and if so, tighten them again. If the problem still persists, it may be that there are cracks or sand holes and other defects in the valve body itself, and further inspection and repair are required.
- **Difficulty in Valve Operation**: It may be caused by rusting and jamming of the valve stem, or a fault in the actuator. For the valve stem problem, rust removal and lubrication treatment can be attempted, and if it cannot be solved, the valve stem needs to be replaced. For the actuator, check whether its power supply and air source are normal, whether the control signal is accurate, and whether the internal components are damaged, and repair or replace them according to the specific problems.
- **The Valve Does Not Open or Close in Place**: Check whether the limit switch is adjusted correctly and whether the stroke of the actuator is set accurately. At the same time, check whether the butterfly disc is blocked by foreign objects, or whether the transmission parts are loose, falling off, etc., and make corresponding adjustments, cleanings or repairs according to different reasons.

### **Performance Characteristics**

- Efficient Sealing: The triple-eccentric design enables the sealing surface of the valve to achieve good fit when closed, with excellent sealing performance and extremely low leakage. It can effectively prevent medium leakage and meet the sealing requirements of various high-demand occasions.
- Low Friction and Long Service Life: The unique eccentric structure reduces the friction between the sealing surface and the butterfly disc, reduces the wear degree of the components, thus extending the service life of the valve, reducing the frequency of maintenance and replacement, and lowering the use cost.
- High Temperature and Pressure Resistance: Using high-quality metal materials and advanced manufacturing processes, the valve can withstand high-temperature and high-pressure working environments, and is suitable for a variety of hightemperature and high-pressure medium conveying systems, such as steam, hot oil, high-pressure gas, etc.
- Good Flow Characteristics: The designed shape of the butterfly disc makes the flow resistance of the medium small when passing through the valve, with a large flow coefficient, which can ensure the efficient operation of the pipeline system and reduce energy loss.
- **Bidirectional Sealing**: It can achieve bidirectional sealing. No matter the flow direction of the medium, it can ensure a good sealing effect. This makes the valve work reliably under different pipeline system layouts and changes in the medium flow direction, with high versatility and flexibility.

