# XD311X Center Line Threaded Butterfly Valve

# Installation and Operation Manual

Meide Group Co., Ltd.

Note: Due to continuous performance optimization, the actual product may differ from the photo; please refer to the actual product for details.

## I. Product Introduction

The threaded butterfly valve features simple structure, small size, light weight, compact installation dimension, easy installation and operation, as well as rapid switching and accurate positioning. It can be used for flow regulation. It is mainly applied as a control valve in fire protection systems. When the valve is opened or closed to the designated position, the signal device on the valve will send a signal to the fire detection center to indicate the open or closed state of the valve, preventing malfunction shutdown of the valve from affecting the automatic sprinkler fire extinguishing function. It can also serve as a control valve on water supply and drainage pipelines for cut-off or flow regulation purposes.

## II. Working Principle

The threaded butterfly valve opens and closes by operating the transmission device to rotate the valve stem, which in turn drives the disc to rotate. Inside the cylindrical passage of the valve body, the disc-shaped butterfly plate is connected to the valve stem. The rotation of the valve stem drives the butterfly plate to rotate for flow regulation within an angle range of 0° to 90°. When the butterfly plate rotates to 90°, the valve is fully open in the pipeline. At this time, only the thickness of the

butterfly plate creates resistance to fluid flow, resulting in extremely low flow resistance. Meanwhile, the medium flow rate can be adjusted when the rotation angle of the butterfly plate is between 0° and 90°.

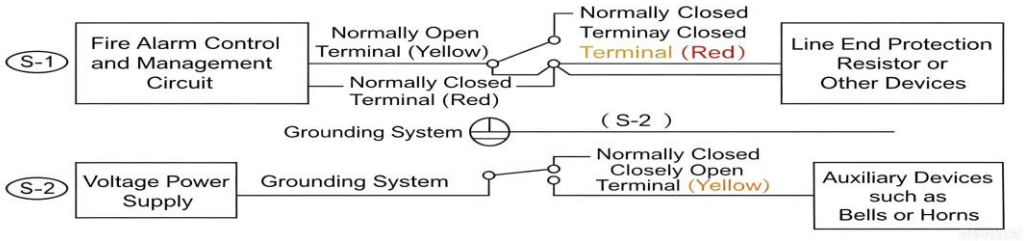
## III. Product Features

1. Low operating torque, labor-saving and flexible.
2. Approximate linear flow characteristic with excellent regulating performance.
3. Simple and compact structure, fast on-off by 90° rotation.
4. Rubber-lined disc with bidirectional sealing design, delivering superior sealing performance.
5. Non-directional installation.
6. Non-toxic anti-corrosion coating: Both internal and external surfaces adopt non-toxic epoxy resin powder electrostatic coating, featuring corrosion resistance and long service life.

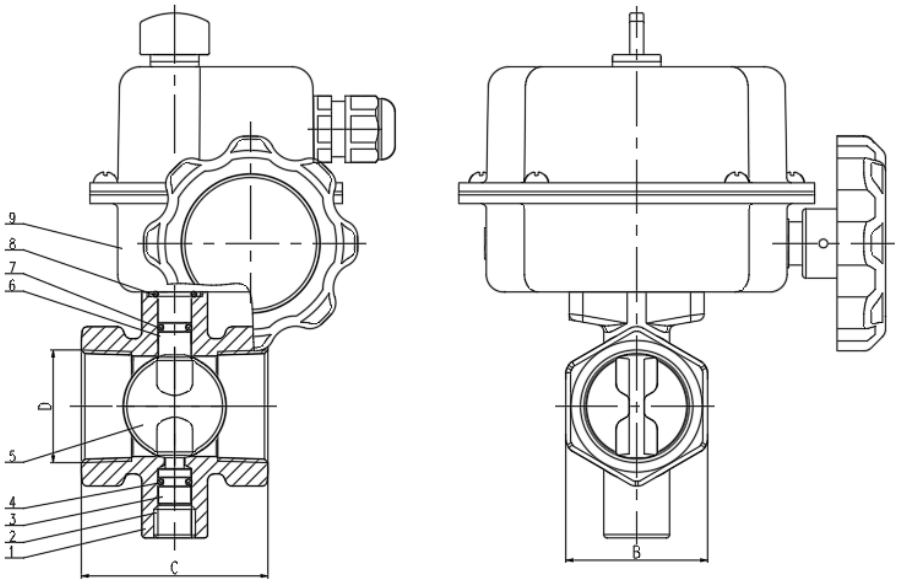
## IV. Main Technical Performance and Standards

| | | |
|---|---|---|
| Connection Standards | | Thread to ISO 7-1 |
| Coating Standard | | AWWA C550 |
| Nominal Pressure PN | | PN10 |
| Nominal Diameter DN | | DN25-DN50 |
| Test Pressure | Strength Test | 1.5 times rated working pressure |
| | Sealing Test | 1.1times rated working pressure |
| Durability (Number of Opening and Closing Cycles) | Manual / Electric | 1000 times sealing test |
| Applicable Temperature | | 0～80℃ |
| Applicable Fields | | Fire Protection / Water Supply |
| Applicable Medium | | Water or media with physicochemical properties similar to water |

Wiring Diagram:



## V. Structural Design and Dimensions




**XD311X**

| Size | | Dimension(mm) | | |
|---|---|---|---|---|
| Inch | mm | C | B | D(Rc) |
| 1" | 25 | 54 | 41 | 1 |
| 1.25" | 32 | 67 | 49 | 1.25 |
| 1.5" | 40 | 73 | 55.5 | 1.5 |
| 2" | 50 | 82.5 | 71 | 2 |

| No. | Part | Standard Configuration | Optional Configuration |
|---|---|---|---|
| 1 | Valve Body | Ductile Iron QT450-10 | / |
| 2 | Bushing | Carbon Steel | / |
| 3 | Valve Stem | Stainless Steel | / |
| 4 | O-Ring | Nitrile Rubber (NBR) | EPDM (Ethylene Propylene Diene Monomer Rubber) |
| 5 | Disc | Carbon Steel + EPDM | Ductile Iron QT450-10 + NBR |
| 6 | Valve Stem | Stainless Steel | / |
| 7 | O-Ring | Nitrile Rubber (NBR) | EPDM |
| 8 | O-Ring | Nitrile Rubber (NBR) | EPDM |
| 9 | Worm Gear Box | Carbon Steel | / |

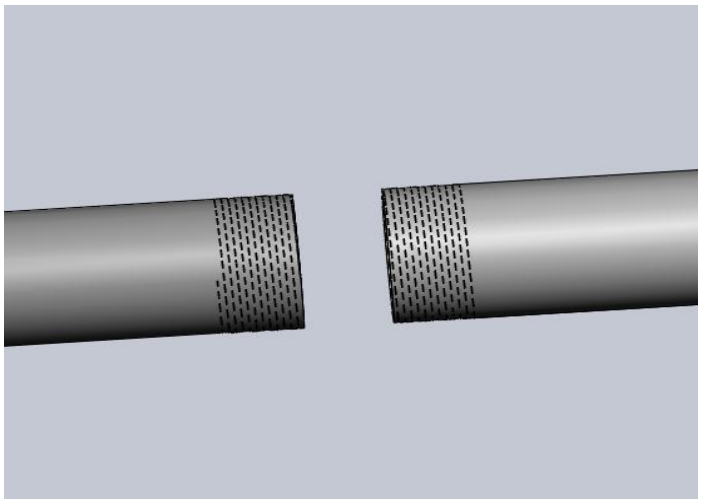
## VI. Installation and Application

1. Pre-installation Preparation: Threaded pipe fittings of corresponding caliber
2. Installation Procedures and Precautions

2.1 Pipe End Inspection:

a. Inspect the outer surface of the pipe from the pipe end to the groove, which shall be clean and smooth, free of burrs, depressions, protrusions (including weld seams), peeling paint, plastic coating falling off, rolling indentations and other defects that may affect the sealing of the rubber ring.

b. Check whether the reserved pipe end distance is consistent with the structural length of the product.

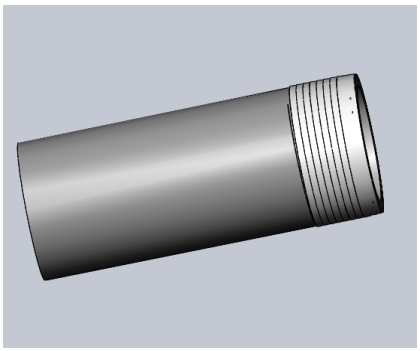


2.2 Winding PTFE Tape

a. Keep the PTFE tape tightened during winding to make it closely attached to the thread. Wind it as tightly as possible without loosening. After winding, press it tightly by rotating by hand, or press while winding.

b. PTFE tape is used at pipe joint connections to enhance the tightness of pipeline joints.

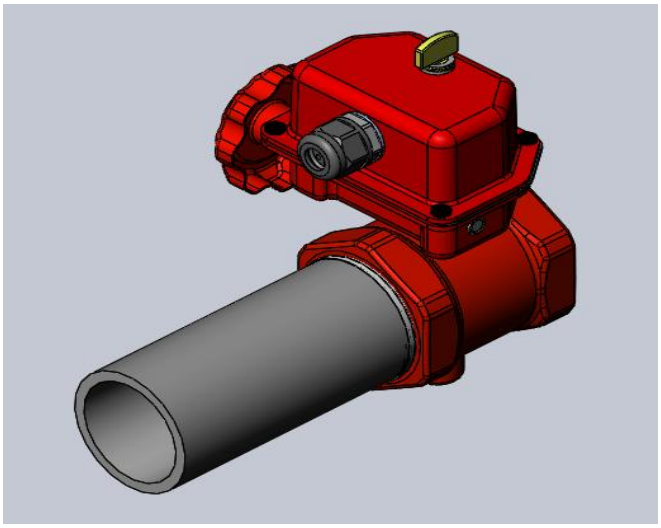
c. There is no mandatory rule for the number of winding layers; it shall be subject to tight screwing and no leakage. Based on practical experience, usually more than a dozen winding turns are required to ensure the sealing performance.



Note: Do not wrap excessive PTFE tape, otherwise it will cause difficulty in connecting the valve to the pipeline.

2.3 Pipe End Connection

a. Screw one end of the pipe fitting tightly to one end of the valve. Once tightened after wrapping the PTFE tape, do not reverse twist. If reversed, re-wrap the tape and tighten again.

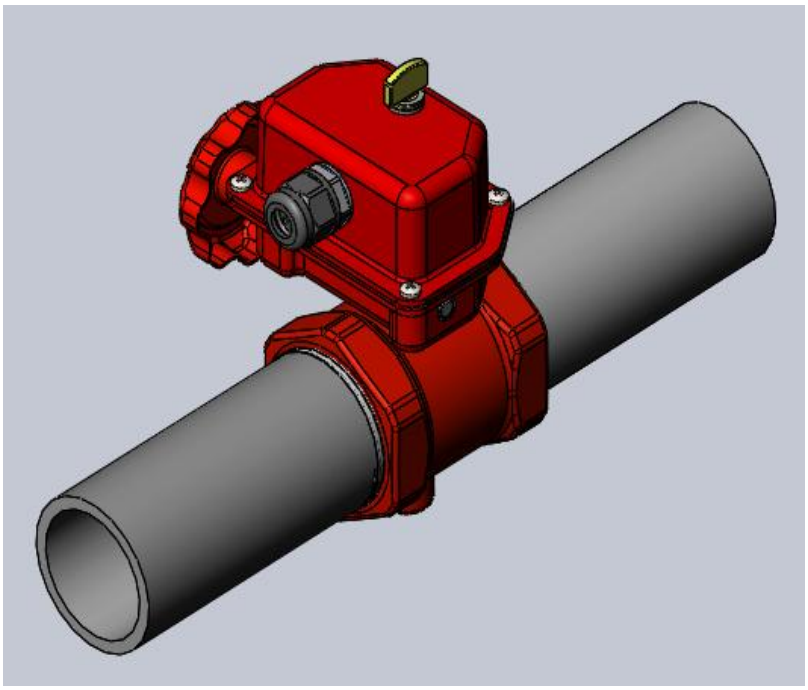


2.3 Connect the Other End

a. Similarly, tighten the other end of the pipe fitting to the other end of the valve. When screwing the thread, do not over-tighten it excessively. A tight seal does not require turning it until it cannot be twisted further; it is sufficient when obvious resistance is felt during tightening. Meanwhile, control the screwing depth and avoid over-insertion.

Recheck to ensure the valve can open and close freely.

Note: Make sure the valve disc does not collide with the pipeline.



3. Installation and Commissioning Precautions

3.1 Before installation, carefully check whether the valve marking complies with the application requirements.

3.2 Inspect the valve passage and sealing surface before installation; if there is dirt, wipe it clean with a clean cloth.

3.3 Apply even and appropriate tightening force during installation.

3.4 This valve can be installed on horizontal and vertical pipelines. The installation position shall facilitate operation, maintenance and replacement.

3.5 For manually operated valves, when facing the handwheel, turn the handwheel clockwise to close the valve.

3.6 It is strictly prohibited to use a wrench for leverage to close the valve, so as to avoid deformation of valve parts or damage to the sealing surface.

3.7 After installation is completed, reconfirm the fully open and fully closed positions.

3.8 After valve installation, recheck to ensure the valve can open and close freely. Note: Confirm that the valve disc does not contact the pipeline.

## VII. Transportation and Storage

1. Valves shall not be damaged during transportation. Prepare slings, lifting equipment and transportation arrangements in advance. Inspect the packaging of the valves. Repackage the valves if any damage is found on the package.

2. Do not drag or slide valves on the ground, so as to prevent damage to the surface, metal components and sealing faces.

3. Do not disassemble the valve during installation. Store the valve in a safe place with proper waterproof and dustproof protection.

4. Do not use the valve to support other heavy objects. It is forbidden to strike an operating valve, and do not stand on the valve.

5. This butterfly valve shall be stored in a cool and dry place with both ends of the passage sealed. For long-term idle storage, conduct regular inspection every six months and replace the rust-preventive oil.

## VIII. Common Problems and Solutions

a. Contaminants adhere to the sealing surface; clean and remove the dirt.

b. Leakage at threaded connections: check whether the PTFE tape is over-wrapped or under-wrapped, disassemble, re-wrap the tape and tighten again.

## IX. Maintenance and Upkeep

1. Valves in service shall be maintained regularly. Generally, flexibility operation, inspection and blowdown shall be performed at least once a month. For valves with filtering function or applied in media containing impurities, the maintenance frequency shall be increased with inspection and

cleaning at least once a week to avoid functional failure. If damage or failure is found on the sealing surface, gaskets or packing during inspection, repair or replacement shall be carried out in a timely manner.

2. In cold weather, drain accumulated water for normally closed valves and take anti-freezing measures. It is prohibited to strike, stand on or place heavy loads on operating valves.

3. All bolts on the top flange and worm gear actuator shall be fully equipped with intact threads. Regularly check whether fasteners of all valve parts are loose or damaged, and repair faults promptly if any.

4. For working conditions with fluctuating temperature and pipeline pressure, it is recommended to retighten the bolts 24 hours after the valve is put into service to compensate for possible loosening.

5. During valve maintenance, replace accessories with those of the same size and material as the original ones. Relevant parts can also be ordered as spare parts for subsequent maintenance replacement.

6. Valves that are not frequently opened and closed shall also have their handwheels rotated periodically.

7. Outdoor valves shall be fitted with protective sleeves on valve stems to prevent damage from rain, snow, dust and corrosion.

8. Valves in service shall be maintained before winter every year. Conduct flexibility operation and timely blowdown monthly to keep the valve clean.

9. After maintenance is completed, record relevant operations in the Valve Maintenance and Inspection Record. The operator and person in charge shall sign for confirmation.

10. Please use the valve in strict accordance with the instructions or consult our company in advance. Our company shall not be liable for any losses or consequences arising from improper use.

## X. Warranty

The warranty period of the product after delivery shall be implemented in accordance with the contract agreement.