

General information

Introduction:

Elara High-performance butterfly valve owns many strong capabilities such as floating seat design, bi-directional zero leakage, low emission system, high-life-cycle. It is widely used in industrial applications such as paper-and-pulp, power-and-energy, water treatment, petrochemical, air separation, and etc.



Indicates a potentially hazardous situation which, if not avoided, could result in death or heavy injury

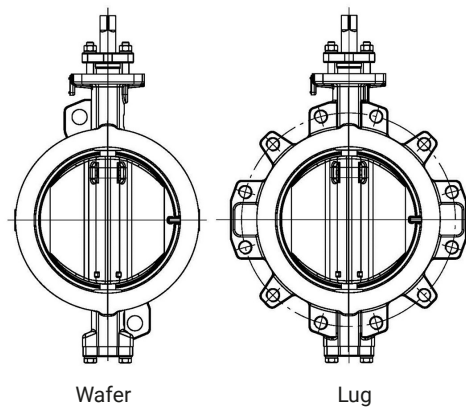


Indicates a potentially hazardous situation which, if not avoided, may result in minor injury or asset lose.

Flange Types:

Two standard connections:

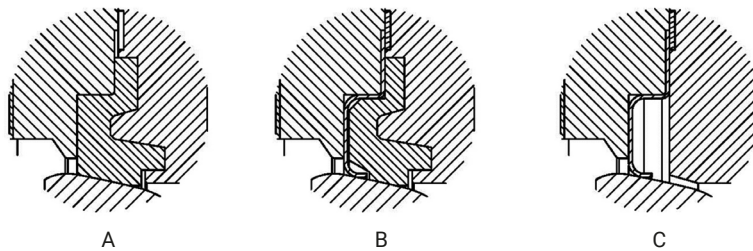
- A. Wafer
- B. Lug



Seat Types:

Three valve seat types

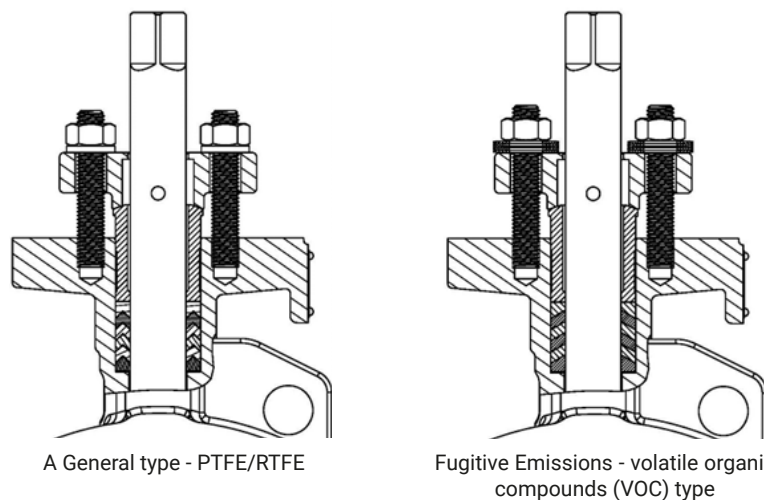
- A. Standard PTFE
- B. Fire-safe
- C. Solid Metal



Gland Packing System:

Major 2 types

- A. General type - PTFE/RTFE
- B. Fugitive Emissions - volatile organic compounds (VOC) type



Installation

Butterfly valve structure is based on a quarter-turn 0 ~ 90 degrees rotation disc, which is compact, small and lightweight. These features enable butterfly valve own the capability of easy disassembly and maintenance, open and close quickly, and with good regulation in linear flow control.

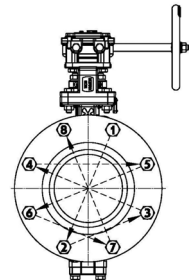
Before Installation:

1. Elara butterfly valve is designed to fit between flanges. When the disc is opened, the disc will enter the tube on both sides of the pipeline (further on the body side than the seat retainer side of the valve), the piping must be enough to open the valve.
2. If the actuator, such as a lever or gearbox, has been removed, the valve disc must not rotate more than the fully open or closed position.
3. In order to ensure the longest life, the valve installation, please follow the instructions of the valve arrow installation.
4. Bi-directional sealing design allows the valve to be installed in any direction, but the valve disc in accordance with the proposed flow can have longer service life, especially while working with erosive fluid.
5. For dead-end service, please follow the recommended flow direction.



Installation into pipeline:

- Before installing the pipeline must be clean without welding slag or others. If necessary, clean the pipe.
- Confirm that the flow direction of the pipeline is consistent with the recommended flow direction of the valve.
- Separating two flanges and make the space between two flanges at least 8mm greater than the face-to-face dimension of valve. Ensure the valve disc is in closed position then carefully put the valve in between the flanges.
- Align the center of the valve to the center of the pipeline. Then locate the valve flange or threaded hole align with the pipe flange hole or threaded hole.
- Flange bolts must use 2-stage locking in diagonal sequence (as shown on the right) with a less than 60Nm average torque. The flanges must keep parallel during locking otherwise may cause leakage through flange face.



After Installation:

1. It is not recommended to remove the valve protection cover before installation, unless inspection or installation of the valve is required.
2. If the valve must be placed outdoors, the valve should be supported so that it does not come into contact with the ground and protected with a waterproof cover.
3. The performance of valve may be reduced if valve keeps in a fixed position in a long time without any movement. This is due to loss of effective lubrication, packing aging, corrosion or accumulation of harmful substances. Therefore a periodic partial or full-cycle operation plan is advised for keep performance.



Maintenance

Maintenance components may be different depends on valve type. For example, as for seat replacement, Standard type only needs to change valve seat; Metal type needs to replace the metal seat and graphite gaskets; Fire-safe type needs to substitute the soft seat, metal seat, and graphite gaskets. The maintenance methods are same for above, but require attention on their relative positions. For the replacement of disc spring of VOC type, it must take right direction during installation.

Attentions:

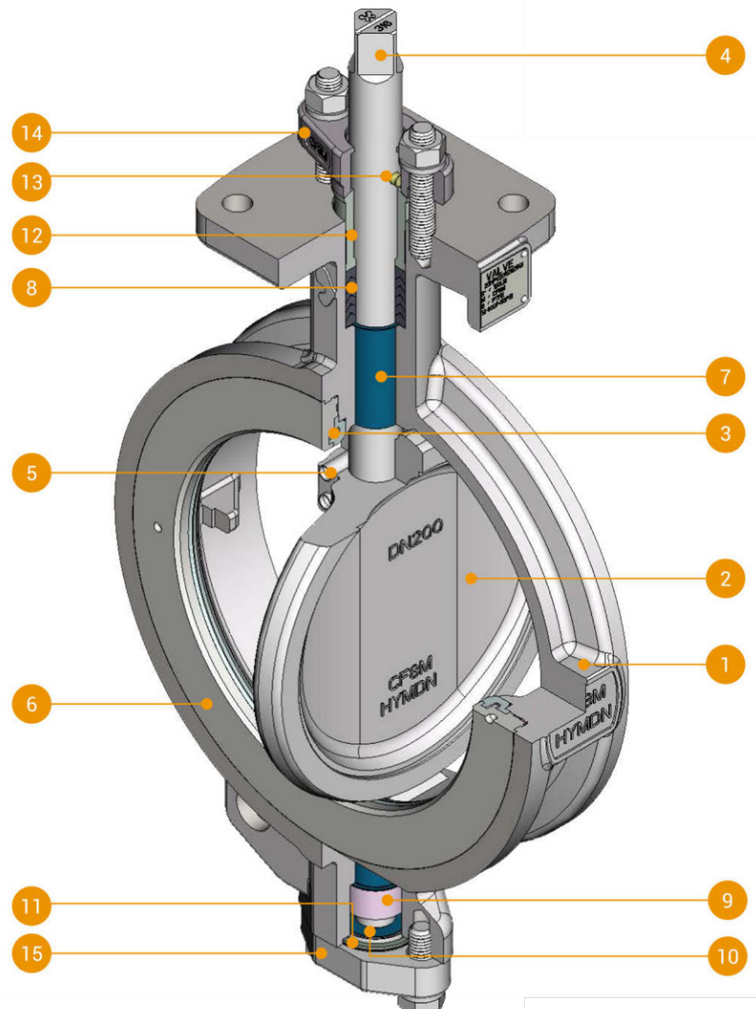
- Before operating the valve, appropriate precautions should be taken. And if necessary, in accordance with the special fluid requirements, protective clothing should be worn.
 - Before removing the operator from the valve or removing the valve (when the valve is installed at the end of the line), the valve must be closed and decline the line pressure.
 - If the valve must be removed from the pipeline, the valve must be stay in closed status.
 - Remove the valve from the pipeline. It is mandatory to perform cleaning and inspection.
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- Valves without an actuator may be opened in the pipeline due to fluid pressure.
 - Do not increase the pressure in the case where the valve is not assembled with a handle or gearbox.
 - When handling or moving the valve, be careful not to scratch the disc edge or seat.



You may obtain replacement valves, fillers, and other parts from InterApp. For more information like price and shipment, please contact InterApp.

Valve components:

Item	Name	Qty
1	Body	1
2	Disc	1
3	Seat	1
4	Stem	1
5	Taper Pin	2
6	Retainer ring	1
7	Stem bush	2
8	Gland packing	1
9	Thrust ring	1
10	Thrust plate	1
11	Gasket	1
12	Gland bush	1
13	Anti blowout pin	1
14	Gland flange	1
15	Bottom cover	1



- When VOC emission is requested, ITEM10 has 2 more materials, EVSP 9000 and 3300W, in option.

Maintenance

Exception handling:

Most leakage exceptions caused by 2 major conditions:

1. **Internal leakage:** Check whether the valve disc is turned to the close position. After confirming the valve can be closed to the right position, if there is still a leakage phenomenon that occurs, it might mean the valve seat or valve has been damaged. In this case, the valve must be removed from the pipeline down and perform replacement.
2. **Stem leakage:** Lock the gland packing with a 1/4 turn. Confirm does the leak has disappeared or decreased. If there is a small amount of leakage, it is recommended to slowly lock gland packing more. (Be sure keeps both sides of bolts are locked equally) If the bolts are locked in the end but still cannot lift the leak, it is recommended to replace the packing. Also, while replacing the seat, it is also recommended to substitute packing and gasket.

Consumable parts:

If the exceptional leakage happened, it is highly recommend to recover the performance by replace below components:

1. **Packing**
2. **Seat:** Standard type only needs to change valve seat; Metal type needs to replace the metal seat and graphite gaskets; Fire-safe type needs to substitute the soft seat, metal seat, and graphite gaskets.
3. **Disc and Stem:** This is a set, need to change both at same time.

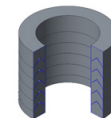
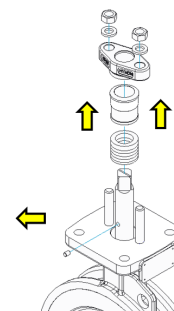
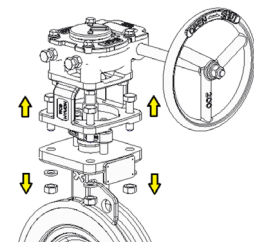
Replacement of consumable parts:

- The installation orientation of the component should be recorded before disassembly.
- During disassembly, do not scratch the valve disc, valve stem or valve body.
- Flange surface should not be fully touched. Carefully keep the flange surface NOT be scratched.



Packing replacement:

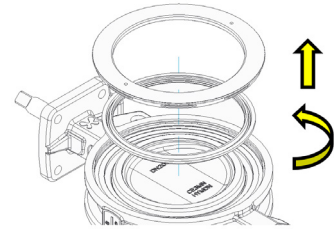
1. **Step 1:** For valves with yoke, first remove the yoke bolts and spring washers, then remove the yoke. For valves with actuators, loosen the yoke screws and straightly remove the whole set of actuator and the yoke
2. **Step 2:** Remove the gland flange after loosening the nuts and spring washers of the gland flange.
3. **Step 3:** Remove the anti-blowout pin and gland bush in sequence, then remove the gland packing.
4. **Step 4:** Before installing the new packing, first check the valve packing hole. If there is a dirty, it should be cleaned before installing the new packing.
5. **Step 5:** When installing new packing, it should be noted that the gap should be loaded down (as right). This provides the capability to completely block the leakage of fluid.
6. **Step 6:** Fill the gland bush into the packing hole, put the anti-blowout pin and then lock the gland flange.
7. **Step 7:** Lock the spring washers and nuts equally.
8. **Step 8:** Reinstall the actuator, or install the yoke first if required.
9. **Step 9:** Make several on-off operation tests. Make sure the valve works smoothly.
10. **Step 10:** Loosen the nut from the gland flange and then re-lock the nuts according to the provisions of the torque value (as right) to complete the replacement of the packing.



Diameter (inch)	PTFE Locking Torque (Nm)	Graphite Locking Torque (Nm)
2-4	11	15
5-6	17	25
8	23	32
10	25	35
12	52	72
14	60	84
16-18	87	121
20	132	182
24	141	195
28	192	265
30	215	300

Seat replacement:

1. **Step 1:** Lay down the valve in a flat with the retainer ring face up, and then rotate the retainer ring counter-clockwise to 22.5°C or 45°C. If it is a pin-lock retainer ring, you can pick it up, if not, please turn it counterclockwise about 3~4 turns before picking it up.
2. **Step 2:** After taking out the retainer ring, carefully remove the valve seat. Clean the valve body and the valve disc. Then check whether scratches or damages in the valve disc.
3. **Step 3:** Place the new valve seat carefully in the valve body. Standard type only needs to change valve seat; Metal type needs to replace the metal seat and graphite gaskets; Fire-safe type needs to substitute the metal seat, soft seat, and graphite gaskets.
4. **Step 4:** Check the retainer ring type
 - Pin-lock retainer ring: Place the new spring and the positioning pin into the retainer ring or body, rotate to the lock position. The seat replacement process is now completed.

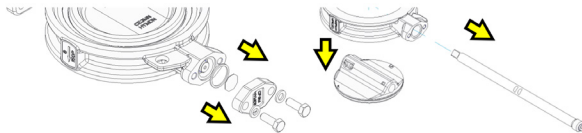
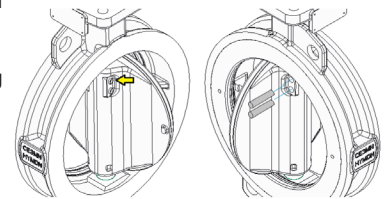


- Thread retainer ring: Rotate the thread retainer ring until it can no longer rotate. The seat replacement process is now completed



Disc and Stem replacement:

1. **Step 1:** For valves with yoke, first remove the yoke bolts and spring washers. Second remove the yoke. For valve with actuators, turn loose yoke screw and straightly remove the whole set of actuator-and-yoke.
2. **Step 2:** Remove the gland flange after loosening the nuts and spring washers of the gland flange.
3. **Step 3:** Remove the anti-blowout pin and gland bush in sequence. Then remove packing.
4. **Step 4:** Remove the retainer ring. (Refer Seat replacement Step 1), Take out the retainer ring and valve seat in sequence. Carefully clean then valve body.
5. **Step 5:** Knock out the taper pin.
6. **Step 6:** Remove the bottom cover after loosen the screw and spring washer. Remove the thrust bearing and the bottom cover gasket. Then pull out the stem and then take out the disc.



7. **Step 7:** After confirming the valve body is clean, place the replacement valve disc in the center of the body. Insert the replacement stem into the disc (disc shall be placed inside body). Then tap the taper-pin.
 - Do NOT tap the taper pin too tight, just make the taper pin lock the stem or the replacement might be unable to complete.
8. **Step 8:** Putting back thrust bearing and the bottom cover gasket. Lock them with screws and spring washers equally.
9. **Step 9:** Installing new packing with the gap loaded down (This will completely block the leakage of fluid).
10. **Step 10:** Fill the gland bush into the packing hole, put the anti-blowout pin and then lock the gland flange.
11. **Step 11:** Lock the spring washers and nuts equally.
12. **Step 12:** Verify that the disc is in the center of the valve body. (Use vernier caliper to measure the up-and-down distance of disc to the valve body is same or not. The error shall be within 0.1mm)
13. **Step 13:** Place the new valve seat into valve body carefully.
14. **Step 14:** Place the new spring and the positioning pin into retainer ring, rotate to lock-position.
15. **Step 15:** Half open the disc. Tap the taper pin completely into the pin hole tightly.
16. **Step 16:** Reinstall actuator.
17. **Step 17:** Make several on-off operation tests. Make sure the valve works smoothly.
18. **Step 18:** Loosen the nuts from the gland flange and then re-lock the nuts according to the provisions of the torque value (listed in Packing replacement) to complete the replacement of the lock.



