General information

Introduction:

To guarantee the benefits of the InterApp butterfly valves ELARA, proper procedures and compliance with the installation instruction are essential. The installation has to be carried out according to the state of the art and only by qualified personnel. InterApp reserves the right to decline responsibility for damage or premature failure if the recommendations contained in this instruction are not being followed. Please consult the InterApp datasheet «Flanges» concerning the allowed flange dimensions. Consult the technical support concerning the installation of a valve at the end of the line. Dimension, material and application range of the butterfly valves ELARA are according to the technical documentation.
Read the entire instructions carefully before commencing the valve installation and start-up work. The warranty only covers manufacturing and material faults. InterApp takes no responsibility for any damage caused by improper installation, maintenance or storage.

This sign describes mandatory action.

This sign describes caution, warning or hazard.

Safety:

These operating and maintenance instructions have to be observed at all times.
Non-compliance with this operating and maintenance instructions may cause:

- Serious personal injuries;
- Damaging nearby equipment.

It is not allowed for the user to modify the product or the mount parts/fittings supplied with it. InterApp does not assume any warranty or liability for consequential damage arising from the non-compliance with these instructions.
Unauthorized, unintentional and unexpected operation as well as dangerous movement caused by stored energy (compressed air, pressurized fluids) should be avoided.
Installation, maintenance and other activities performed on the butterfly valve should be done only by qualified and specially trained personnel.

Proper use:

The standard model can be used to open and close the flow of the medium in pressurized pipelines.
The maximum operating temperatures and pressures stated in the InterApp product portfolio and in these instructions should not be exceeded.
The valve should only be exposed to pressures within the range of its nominal pressure.

For any deviating operating conditions and applications the user should obtain the manufacturer's prior written approval.

In case of any uncertainty referred to this operating, installation and maintenance instructions, please contact the manufacturer.

Storage

Be careful not to get a scratch on disc edge and seat ring. The flange must be protected by plywood or other things when carrying valve. Valve must not be shocked and shaken too much. (It may cause the cracking neck, lever, handle and body). It is recommended to be kept and carried under the condition of opening. The suitable temperature is from -10ºC to 70ºC and humidity is between 10%~60% while keeping butterfly valve. In keeping butterfly valve, must check the operation once per months.

Transportation and receiving

To transport the butterfly valve to its installation site, it should be packed in a stable, properly sized container. The butterfly valve should be transported fully closed position to prevent damage on the sealing. The container also needs to ensure that the butterfly valve is protected against weather influences and damage. When the butterfly valve is transported long distance (e.g. overseas) and exposed to special climatic conditions, it needs to be protected by sealing it in plastic wrapping and adding a desiccant.
Upon receipt of product, it is important to follow these unpacking and inspection procedures. If external damage to the shipping container is evident upon receipt of product, please request that a representative of the shipping carrier be present before unpacking the product.
Carefully open the shipping container, following any instructions that may be marked on the container. Remove all packing material surrounding the valve and carefully lift it from the container. It is recommend to keep the shipping container and all packing material for reuse in storage or reshipment.
Visually inspect the butterfly valve for any signs of damage including scratches, loose parts, broken parts or any other physical damage that may have occurred during shipment. If damage is observed, immediately file a claim with the shipping carrier. If applicable, photograph the damage detected on the butterfly valve.

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Installation

General information:

- Butterfly valves can be installed in the pipeline in any position.
- Before installing butterfly valves, the pipeline must be cleaned from dirt and welding residues, otherwise seat may be damaged.
- Also the pipeline must be free from tension and electric current.
- When handling valves, be careful to avoid contact with or impact by other equipment, vault walls or trench walls.
- Check carefully to see if valve seat/disc surface as well as flange are all clean.
- Tighten again, if any, all bolts loosened during transport and/or handling.
- Open and close butterfly valves to check for proper operation.
- If possible, install butterfly valves in the direction of arrow mark on it for easy access and maintenance.
- Do not use butterfly valve as a substitute for jack when putting pipes alignment.
- The span of pipeline having connection between valve and pipe should be free from such excessive loading as may cause serious bending.
- Do not weld the piping around the butterfly valve area under the condition that the valve is installed.damage detected on the butterfly valve.

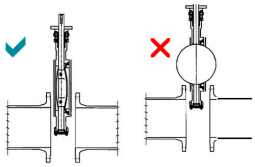
Installation on the existing pipeline:

- Verify the distance between two flanges to be equal to face to face butterfly valve dimension.
- In order to facilitate installation of the valve, allow with adequate tools a sufficient room in between flanges.
- Insert at least two flange-bolts through the two bottom pipe flange holes to rest valve on during installation.
- Close valve disc partially so that disc edge is at least 10mm within the body.
- Insert butterfly valve in between flanges. Flange gaskets should be positioned, and aligned with valve bore.
- Butterfly valve will be held by the two flange-bolts previously fitted in the lower part of flange.
- Insert the flange-bolt through centering lugs/tapped holes of butterfly valve.
- Insert the remaining flange-bolts aligning the valve with the flanges and tightening bolts manually.
- Maintain the butterfly valve aligned, remove flange spreaders gradually and tighten bolts partially.
- Adjust open and close operation of butterfly valve to be easy and smooth.
- Open the butterfly valve complete and closed tight the bolts to adequate torque.
- **Installation of lug type butterfly valves has same procedure of wafer type using studs instead of bolts and nuts.**

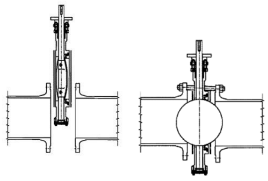
Installation in new pipeline:

- Shut valve disc partially until disc profile is at least 10mm within the body.
- Align the two flanges with the valve body.
- Flange gaskets should be positioned and aligned with valve bore.
- Span the body with some flange-bolts and tighten the bolts partially.
- Finish tightening by uniform cross bolting.
- Use the flange-valve-flange unit for pipe centering.
- Install the valve following the installation instruction on existing pipeline.

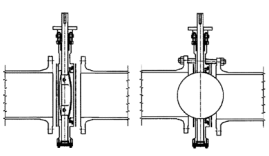
Correct installation:



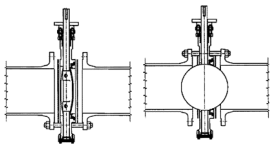
1) Spread flange enough to allow the butterfly valves with disc in semiclosed position.
This prevents the damage of disc and seat during installation.



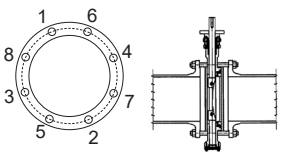
2) Flange gaskets should be positioned aligned with butterfly valve bore. Pipe misalignment may cause interference between disc edge and flange face, creating leakage and excessive torque to open valve



3) Flange gaskets should be positioned aligned with valve bore. Pipe misalignment may cause interference between disc edge and flange face, creating leakage and excessive torque to open butterfly valve.



4) Insert bolts through the two bottom pipe flange holes to rest valves on during installation. Disc should not be in full open position after flange alignment and before evenly tightening flange bolts.



5) Tighten the flange bolts evenly to prevent the leakage between flange and butterfly valve.

Putting the butterfly valve into operation

Visual inspection:
Visual inspection of the butterfly valve and its equipment, especially all functional parts, should be conducted prior to putting the butterfly valve into operation. All screwed connections need to be checked as to whether they are tightly fastened.

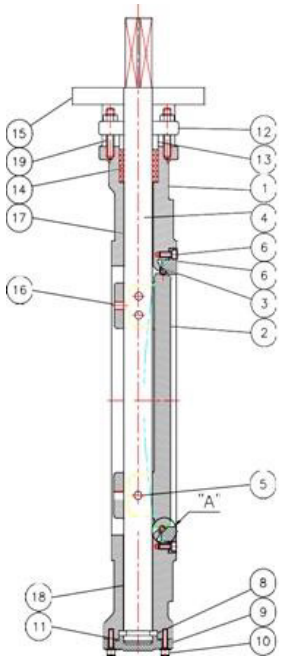
Function check and pressure test:
Before putting the butterfly valve into operation, its function parts (disc) should be completely opened and closed at least once and their proper running should be tested.
When closed, the butterfly valve should only be exposed to pressures not exceeding its nominal pressure. Pressure tests during which the pipeline is filled in flow direction are preferred.

Start-up:
Flush the pipeline thoroughly once the butterfly valve installation has been completed. All butterfly valves delivered to customer have passed the pressure test and all required tests at the factory. However, it is necessary to check that there are no faults due to transportation and handling. Make sure that the butterfly valve-actuator combination functions without problems prior to the start-up procedure.

Always close the butterfly valve using the actuators mechanical travel stops; stay below the maximum torque limit. Avoid the use of excessive force in closing as this cannot improve the valve's tightness.

Maintenance

Caution:
Before attempting any maintenance, ensure that the system has been depressurized and, if necessary, drained of any dangerous fluid.



Parts list	
1	Body
2	Disc
3.1	PTFE seat
3.2	Metal seat (fire safe only)
4	Stem
5	Disc pin
6	Retainer
7	Retainer bolt
8	Thrust plate
9	Bottom cover
10	Bottom bolt
11	Botttom gasket
12	Packing gland
13	Gland ring
14	Packing
15	Top flange
16	Set bolt
17	Stem bearing (upper)
18	Stem bearing (lower)
19	Gland bolt / nut
20	Top flange bolt
21	Gasket (fire safe only)

Replacement of packing:
If further adjustment of the packing is inappropriate, adopt the following procedure for its removal and replacement.

1. Remove the operator (Lever, Gearbox or Actuator).
2. Remove top flange (15).
3. Remove packing gland bolts / nuts (19).
4. Remove packing gland (12).
5. Remove gland ring (13).
6. Remove packing (14) using a pointed instrument.
7. Fit new packing (14).
8. Refit gland ring (13).
9. Refit packing gland (12).
10. Refit gland bolts/nuts(19) tightening evenly until heavy resistance is felt. During this operation turn the stem to ensure that the packing is not overtightened.
11. Refit top flange (15).
12. Refit the operator.

Replacement of seat:

PTFE or rubber seated valves

1. Remove retainer bolt (7).
2. Remove retainer (6).
3. Remove seat (3).
4. Ensure that all components are clean. Position the disc in the closed position.
5. Refit all components by reversing the steps shown in above.

Replacement of shaft bearing:

Removal

1. Remove the operator (Lever, Gearbox or Actuator).
2. Remove the packing (14) in accordance with procedure of replacement of packing.
3. Remove seat (3) in accordance with procedure of replacement of seat or seat may retain is situ to prevent accidental damage.
4. Remove bottom bolt (10).
5. Remove bottom cover (9).
6. Remove thrust plate (8).
7. Keep the disc (2) in the fully open position and its weight supported.
8. Drive out the taper pins (5) using a punch.
9. Withdraw the stem (4) from the body (1).
10. Remove the disc (2) through the back face of the valve body (1).
11. The stem bearings (17,18) are now exposed and may be removed.

Refitting

1. Clean out bearing cavities and fit new stem bearings (17,18).
2. Re-introduce the disc (2) into the body (2) in the open attitude through the back face and support its weight.
3. Refit the stem (4).
4. Refit the disc pins (5).
5. Refit thrust plate (8).
6. Refit bottom cover (9).
7. Refit bottom bolt (10).
8. Reassemble packing assembly.
9. Refit seat assembly.
10. Refit operator.

Troubleshooting

For all maintenance and repair work please observe the general safety instructions under "Safety".

Problem	Cause	Remedial action
Leakage in the closed position	The disc is not closing fully: Actuator is not properly adjusted or seating torque exceeds actuator output capacity	Refer to actuator adjustment procedures or consult with the manufacturer
Leakage losses	Remains and dirt on body sealing surfaces	If dirt is crusted, clean sealing surfaces
Leakage on the packing	Damaged packing	Replace packing
Operational torque too high	Dirt between seat and disc	Clean between seat and disc
Butterfly valve blocked	A foreign matter is jammed in sealing area	Use the butterfly valve in OPEN POSITION so that the foreign matter is flushed away. If that doesn't help, dismantle the valve and remove foreign matter
Cavitation in the butterfly valve	Butterfly valve operating beyond its design limits	Butterfly valve not suitable for use as control valve. Replace the valve with more suitable valve type
	Operational data changed	