

Operating Instructions

Resilient Seated Butterfly Valves

Type 424 Epoxy Line double flanged
for water (PN 10/16)

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Specifications subject to change without notice.



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1 Intended use

After the installation into a pipeline, butterfly valves are only intended for stopping or allowing media to pass within the range of the permitted operating conditions (temperature and pressure limit "PN" labeling on the valve, unless stated otherwise).

These valves are preferably intended for liquid media, such as drinking water or gas. Any deviating operating conditions or areas of application are subject to manufacturer approval.

We will not assume any responsibility for consequential damage caused by



- unauthorized modification of the valve and the accessories supplied
- improper operating or operating conditions
- acts of god



To control in continuous operation shut-off valves are not usable.
Cavitation is definitely to be avoided.

2 Safety precautions

2.1 General safety instructions

The same safety provisions are applicable to Valve as for the pipeline system, into which the same are installed, and as for the control system the actuator is connected to. The present instructions provide those safety instructions only that have to be observed in addition for Valves.

The customer must not change or modify this product or the mounting parts / fittings supplied with it. Asteknik does not assume any warranty or liability for consequential damage arising from the non compliance with these instructions.

2.2 Safety instructions for the owner/operator

For the use of this Valves, the generally accepted technical rules should be considered. No Valve must be operated, the admissible pressure or temperature range of which is not sufficient for the operating conditions. This admissible range is described in the quality documentation or in the confirmation of the order. As regards to the use outside of this range, an approval issued by the manufacturer is necessary.

It has to be ensured that the selected materials of the parts of the Valve coming in contact with the medium are suited for the medium used. The manufacturer will not assume any liability for damages resulting from corrosion due to aggressive medium.



Do not operate a valve whose permissible component operating pressure ("Ps") and maximum permissible operating temperature ("Ts") are not sufficient for the operating condition. The area of application is marked on the valve.



Within the permissible operating temperatures, there is a risk of injury when working on the piping components at temperatures below 10 ° C and above 40 ° C. Therefore, protective measures should be taken in these cases.



Operating fluids must comply with the specification of the valve. The manufacturer assumes no liability for corrosion damage caused by aggressive media. Failure to comply with this requirement can endanger life and limb and cause damage to the piping system.

- The valve must be properly installed in the pipeline.
- In the pipeline the usual flow velocities (e.g. according to EN 1074-1: 2.5 – 5 m/s for liquids must not be exceeded in continuous service.
- Abnormal operating conditions such as vibrations, water hammers, erosion, cavitation and greater fractions of solids in the medium – especially wearing solids – must be clarified with the manufacturer.

2.3 Special risks



Before opening and/ or repairing valve, the pipe must be completely depressurized. The pipe should be completely emptied before replacing wearing part



For valves used as an end fitting: In normal service a blank flange or a cover must be mounted on the free pipe connection or the valve must be securely locked in the "SHUT/CLOSED" position. Caution on closing such a valve: Beware of risk of crushing!

3 Transport and storage

Butterfly valves have to be handled, transported, and stored carefully:



The butterfly valves need to be transported and stored with the disc in closed position.



When storing the butterfly valves before it is installed the valve has to be stored in closed rooms and has to be protected against hazardous influences such as contaminations, solar radiation or moisture. The Valves must be protected from dirt and damage on the building site. They should be kept such that the sealing ring is not exposed to direct light. Disc seat should also be kept clean from dust. If this should happen, before proceeding in the installation, clean the disc and the seat.

In the event of storage over an extended period of time, the storage location should be frost-protected, cool, dry, dark and free of dust. Alternatively, the valves may also be packed in order to fulfill these conditions.

The valve should be stored on a pallet or similar support and only transported with suitable tools such as wide straps to its designated point of installation. Do not use chains!

4 Pressure test on the pipeline

- New installed pipelines should be carefully flushed first to wash out all foreign bodies.
- Valve open: The test pressure may not exceed the value $1.5 \times PN$ (see valve markings).
- Valve closed: The test pressure may not exceed the value $1.1 \times PN$ (see valve markings).

5 Installation into the pipeline

5.1 General information



Only original spare parts from the manufacturer may be installed.



The sealing surfaces of the flanges are designed for mating flanges with smooth sealing strips, according to EN 1092 or Stock Finish according to ANSI B 16.5. Other flange shapes must be agreed with the manufacturer. Elastomer gaskets according to the DVGW Guidelines W 270 are recommended, preference is to be given to flange seals with a metal core according to EN 1514 Part 1.



The same instructions apply to the installation of Düker butterfly valves in a pipe as for the connection of pipe elements according to EN 1092 and BS standards. It is assumed that the corresponding instructions are known and are followed. They are not part of these operating instructions. The following installation instructions additionally apply to butterfly valves



In order to prevent electrochemical corrosion, the formation of potentials should be avoided when installed in pipes made of non-corrosive steel. Especially in humid environments, which lead to condensation on the valve, it is therefore advisable to electrically disconnect the flange connection elements.

5.2 Operational steps

- Transport the fitting in the protective packaging to the installation location.
- Before the installation, remove all packing material. Please leave enough space for easy installation and maintenance. For outdoor installation, the customer should protect the valve against the effects of the weather.
- Recommended installation is min 3 x DN away from flow disturbing elements such as pumps, tees and elbows.
- Check the interference of butterfly valve disc in fully open position with neighboring elements.
- If the valve had been stored for a long time, clean and lubricate the body seat area and open and close the valve once.
- Supply the connection flanges appropriate to valve pressure ratings.
- Steel reinforced elastomer gaskets Asteknik type 8000 are recommended to be used as flange gaskets.
- Weld the flanges to the pipe parallelly and appropriately to the face to face dimension of the valve.
- Install the butterfly valve between the two flanges by the flow direction.
- Please check the flow direction on the valve type shield. Although Asteknik Butterfly Valves are bidirectional and seal from both directions, preferred installation is, when the valve is closed higher pressure side is on the shaft side of the disc as shown on figure 1.

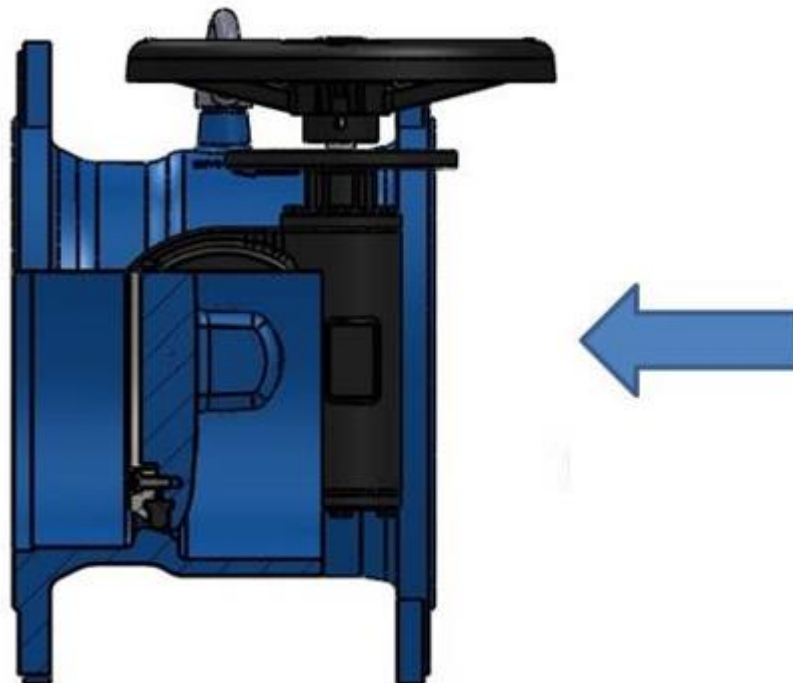


figure 1

- Put the gasket, which has suitable flange connection, between the flanges and tighten them by bolts.

6 Functional description

The butterfly valve is a valve for controlling the flow of a fluid in a pipeline. The valve is installed in the pipe with flange connections. The Düker butterfly valves have a flow optimized, double-eccentrically mounted disc. The profile seal can easily be readjusted and easily replaced.

The disc is connected to the drive shaft and guided out of the housing. The bearing shafts run in maintenance-free bearings. Through internal and external O-rings, the shafts are sealed.

The butterfly valve can be operated either with hand wheel, Düker installation kit, electric actuator and hydraulic or pneumatic rotary actuators. The stop of the slider-crank mechanism is adjustable for the end position "CLOSED".

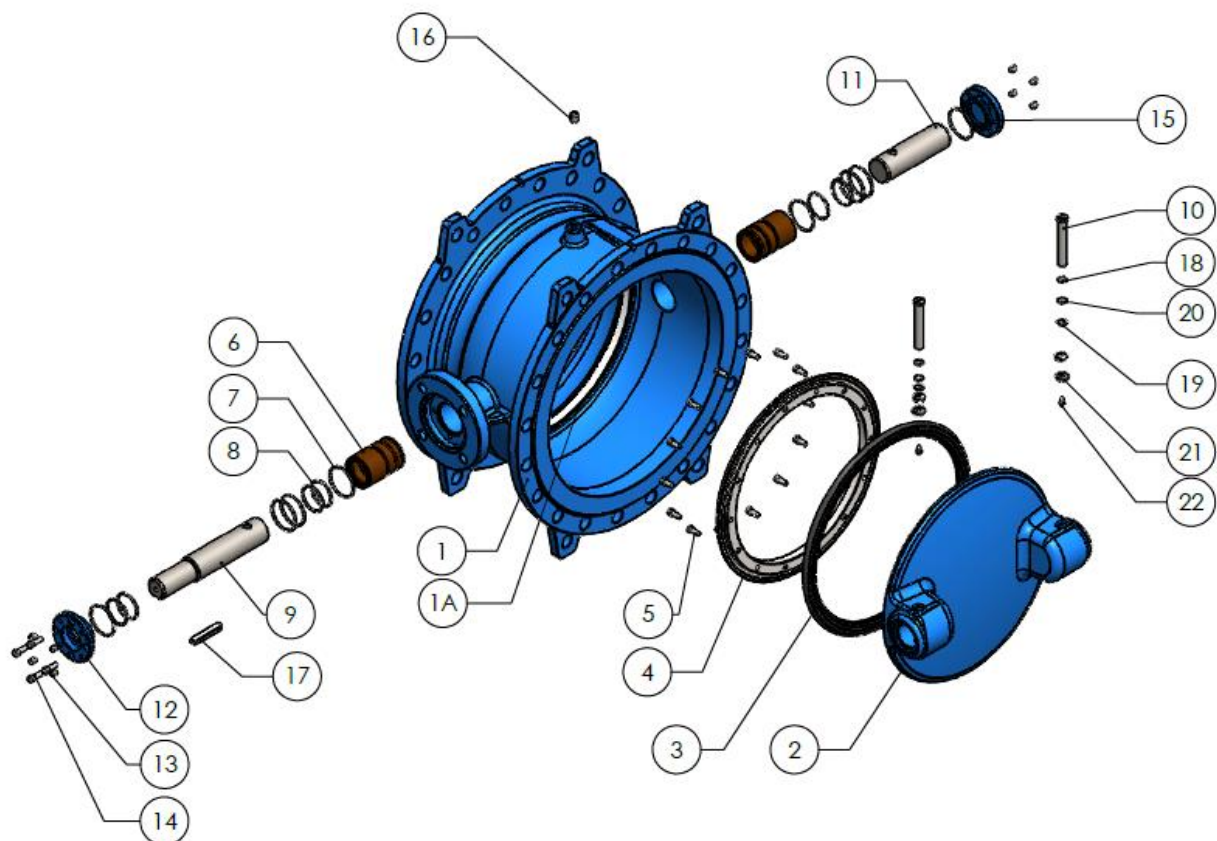
The use of extensions to increase the operating torque during hand wheel operation is not permitted as this will damage the valve. The valve is closed clockwise and opened in the opposite direction.

7 Identification



8 Drawing and parts list

8.1 Drawing



8.2 Part list

Position	Benennung	Position	Benennung
1	Body	12	Front Cover
1A	Body Seat	13	Setscrew
2	Disc	14	Bolt
3	Disc Seat	15	Back Cover
4	Retaining Ring	16	Setscrew
5	Bolt	17	Key
6	Front – Back Bushing	18	O-Ring
7	O-Ring	19	Circlip
8	O-Ring	20	O-ring
9	Front Shaft	21	Washer
10	Pin	22	Bolt
11	Back Shaft		

9 Operation

To operate normal hand forces are sufficient. When using a rotary device, make sure that the maximum actuation torques do not exceed 200 Nm.

10 Troubleshooting

Leakage at a connection to the pipeline:

- Tighten the flange screws.
- If leakage continues: Repair necessary.

Leakage at disc:

- Check if valve is 100% closed. If so, check if the valve has been closed with the required torque.
- If leakage persists, open / close the valve several times under pressure.
- If the valve continues to leak, repair is necessary. Change the rubber seal.
- Request replacement parts and instructions from Düker.

Further Hints:

- Spare parts are to be ordered with all information of the marking on the valve. Only DÜKER original parts may be installed.
- If it is determined after removal that the housing and / or internal parts are not sufficiently resistant to the medium, the manufacturer DÜKER should be contacted.

Dysfunction:

Remove and inspect the fitting. If the valve is damaged: Repair is necessary. Request replacement parts and required instructions from DÜKER.



The valve is sealed by O-rings. Before the blind pin or the connecting ring on the valve is loosened, the pressure in the pipeline must be completely reduced. When replacing wearing parts (e.g. profile seal or O-rings), the line should be completely emptied. When disassembling the capital 2 safety instructions must be strictly observed



Please note that Düker GmbH assumes no liability for damage and malfunctions resulting from non-compliance with the operating instructions.



11 Service and maintenance

11.1 Maintenance

Typ 424 is equipped with maintenance free bearings. Gearbox stem and gearbox bearing are of the long time lubricating type.

Before starting work on the valve, the valve should be closed and the pipe section should be pressureless.

- Check external condition of the valve including the gear box or other type of actuator.
- If necessary clean the valve and check tightness at flanges.
- Check the operation of the valve and the actuator. Move valve manually.
- Check seat tightness, close the valve.

11.2 Replacing the disc seal

- Bring the valve to closed position
- Loosen the socket head screws on the retaining ring and remove the ring.
- Remove the sealing element around the disc.
- Place the new seal that you have acquired from the manufacturer and with the help of a PTFE hammer make sure the grooves of the seal are in the grooves of the disc.
- Place the retaining ring on the seal.
- Place the bolts in their places and tighten them in a diametrical manner. To eliminate the risk of loosening during service it is recommended to use thread locker

When replacing the disc seat please apply the torques as listed below and the tighten them in a sequence as shown in the image. (Figure 2)

Retaining ring bolt torques				
M6	M8	M10	M12	M16
5-8 Nm	12-15 Nm	20-25 Nm	35-40 Nm	80-90 Nm

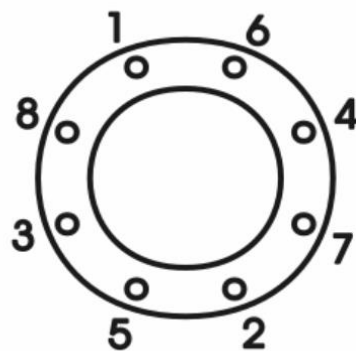


Figure 2

To ensure proper function and compliance with drinking water hygiene regulations, only original Düker spare parts may be installed.

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