

# Instructions for Installation, Operation and Maintenance of ABO Butterfly Valves Series 900

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## 1. Instructions

These instructions are intended for professional installation and maintenance of ABO valves as well as for trouble-free operation. Only the valves included in the package supplied by the manufacturer can be used for installation. Valves should be stored in a dry, dust-free area, away from light. No preservation is necessary with proper storage. Installation, removal and maintenance may only be performed by professionally trained staff. Prior to the beginning of the removal work, the fluid must be discharged from the piping and the piping pressure supply must be shut-off and securely locked. Valve actuators must be properly disconnected and locked. The valves are designed for specific applications and can only be used for specific purposes according to the order.

## 2. Description

ABO valves are fit for all the operations involving closing or regulation of flows in piping systems in all industrial sectors, for liquid, gaseous and loose media.

Main areas of application:

- Chemical and petrochemical industry
- Food industry
- Water management, clean and polluted water
- Pneumatic transport
- Cooling and air-conditioning
- Heat engineering

## 3. Installation

ABO valves may only be installed between flanges with gasket surfaces e.g. B shape according to EN 1092.

The direction of the flow of the medium and the valve position are optional. There is no need for additional sealing between the valve and the flange. Flanges must not be welded to the pipe with the valve installed, otherwise, the seat would be damaged.

- a) Place the valve with a slightly open disc between the flanges. The distance between the flanges must be sufficient in order to prevent damage to the seat.
- b) Tighten the flanges lightly with four bolts and align the position of the valve.
- c) Attach the flanges at several points to the piping using a welding electrode.
- d) Remove the valve.
- e) Weld the flanges to the piping.
- f) After the flanges have cooled down, re-insert the valve, and ensure sufficient clearance!
- g) Align the valve and tighten the valve lightly using 4 bolts.
- h) Open the valve orifice and ensure that the disc is easy to move.
- i) Add the remaining bolts and tighten them firmly (in a "criss-cross pattern").
- j) Test the proper functioning of the valve (the disc must not strike the piping).

Note: Flanges have to be parallel and aligned at all times. The contact surfaces must be smooth and clean, free of any scale and impurities. Horizontal position of the valve stem is recommended for valves of DN  $\geq$  350.

## 4. Operation

Prior to the installation it is necessary to make sure that the supplied valve meets the specifications in terms of resistance of the material of the seat and the disc to the transported medium, as well as other parameters – pressure, temperature etc.

ABO valves may serve to regulate or to constrict the flow, however, cavitation must be avoided.

Permitted flow rates:

- Fluids: up to 4 m/s
- Gases: up to 20 m/s

The control of the valves must be smooth and slow to avoid hydraulic shock.

## 5. Removal

The removal must be permitted by the plant management (pressure shut-off, etc.).  
Prior to the removal of the valve, any actuators must be disconnected by qualified staff.  
Loosen the bolts attaching the flanges with caution (the piping may still be under pressure).  
Remove the valve from the piping in a closed position.  
After removing, store the valve in a suitable place (e.g. on a wooden pallet).

## 6. Maintenance

ABO valves are maintenance free. If the valves are operated according to the regulations, no maintenance is required.

## 7. Repairs

Prior to the repair, remove the valve as described in the regulation above (see item 5).

The valve must be clamped so as to avoid damage to the seat.

Remove the actuator according to the manufacturer's instructions.

Part replacement:

Note: After removing the stem and the pivot, the disc must be secured to prevent falling out.

Removal procedure:

- Remove the stem locking sleeve
- Pull the stem out of the body
- Knock the pin out
- Pull the pivot out of the body
- Check, or replace the stem and pivot "O" ring
- Push the disc out of the seat
- Remove the seat from the body (without using sharp tools)
- Check, or replace the seat
- Press the seat gradually into the body
- Check the correct position of the holes for the stem and the pivot
- Lubricate the stem and the pivot at the point of the "O" ring with appropriate agent
- Press the disc into the seat observing the correct hole position (square on the top, round holes at the bottom)
- Put on the pivot
- Insert the stem observing the correct position of the upper square
- Screw in the stem locking bolt
- Check the rotation of the stem with the disc
- Install the valve control
- Check the correct position of the valve and the disc in the closed and open position
- Check the tightness by pressurizing after installation

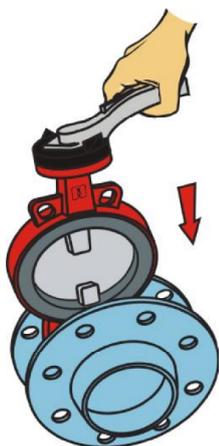
## 8. Troubleshooting

The following table describes some of the potential problems and measures for their elimination.

Note: It is necessary to know all the installation procedures and Safety Regulations before making any repairs. This work may only be performed by trained staff.

<b>Failure</b>	<b>Cause of failure</b>	<b>Failure elimination</b>
<b>Leakage between the valve and flanges</b>	Insufficiently tightened flange bolts	Tighten the bolts
	Valve not centred	Reinstall the valve in the correct position
	Internal diameter of the flange too large	Replace flanges
	Burnt or damaged seat	Replace the seat
<b>Valve does not close</b>	Solid particles between the seat and the butterfly	Remove and clean the valve, or replace the damaged parts
	Hardened or porous seat	Replace the seat
	Pressure of the medium too high	Check the pressure of the medium
<b>Valve leaking when closed</b>	Worn seat	Replace the seat
	Worn disc (erosion)	Replace the disc
	Incorrect closed position	Check and adjust the position
<b>Leakage around the stem</b>	Stem seal damage	Replace the seal

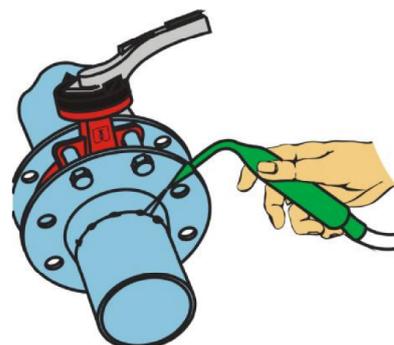
## Installation Instructions – Series 600, 900



1. Place the valve with a slightly open butterfly between the flanges. The distance between the flanges is to be sufficient in order to prevent a damage to the seat.



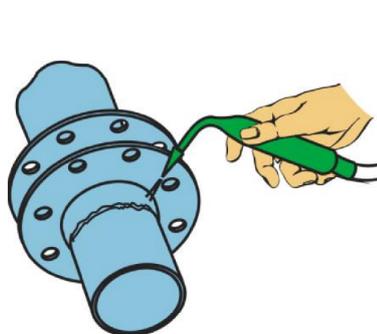
2. Lightly tighten the flanges with four bolts and align the position of the valve.



3. Attach the flanges at several points to the piping using a welding electrode.



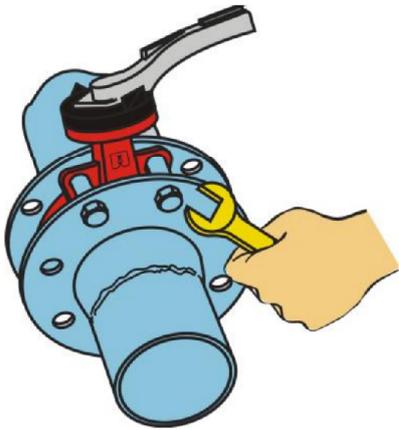
4. Remove the valve.



5. Weld the flanges to the piping.



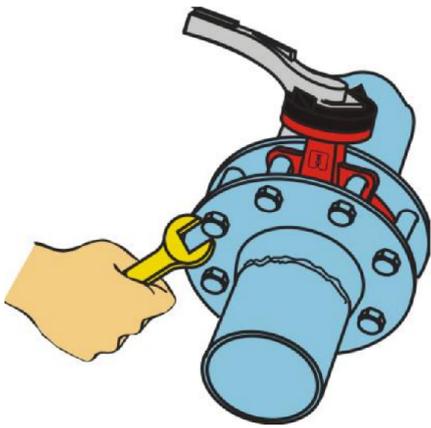
6. After the flanges have cooled down, insert the valve, and ensure sufficient clearance (see Fig. 1).



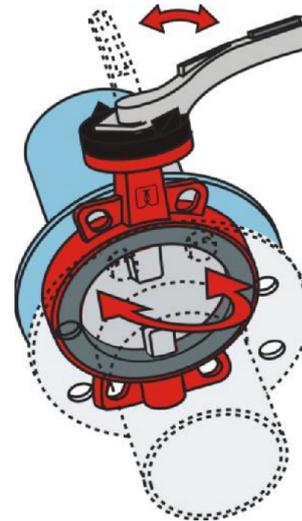
7. Align the valve and lightly tighten the valve using four bolts.



8. Open the valve orifice and ensure that the butterfly is easy to move.



9. Add the remaining bolts and tighten them firmly (in a “criss-cross pattern”).



10. Test the proper function of the valve (the butterfly must not strike the piping).

