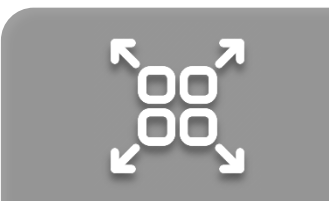
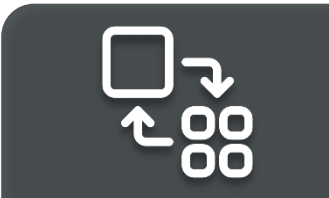
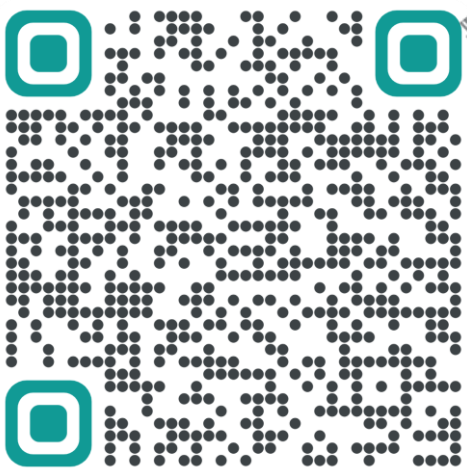




## WAFER / LUG BUTTERFLY VALVE USER MANUAL



## INTRODUCTION

Thank you for purchasing Convalve products. Each product has been thoroughly inspected after its production to offer you the highest quality and reliable performance. Please read the product manual carefully prior to installing and commissioning the product.

- Installation, commissioning, and maintenance of the product may only be performed by trained specialist personnel who have been authorized by the plant operator accordingly.
- The manual should be provided to the end-user.
- The manual can be altered or revised without any prior notice. Any changes in product's specification, design, and/or any components may not be printed immediately but until the following revision of the manual.
- The manual should not be duplicated or reproduced for any purpose without prior approval from Convalve.
- In case of any other problems that are not stated in this manual, please make immediate contact with Convalve for assistance.

## TRANSPORTATION AND STORAGE

- Convalve recommends storing Butterfly Valves in a clean and dry environment. For optimal storage conditions, it is recommended to store the Butterfly Valves indoors, safeguarding them against adverse weather conditions and other potentially harmful elements. At Convalve, we prioritize the longevity and performance of our products, and these storage guidelines are meant to preserve the Butterfly Valves functionality and reliability throughout their lifecycle.
- Handling the Butterfly Valves with care is of utmost importance to prevent any scratches, damage, or harm to the environment during transportation. Adequate protection should be provided to ensure the actuator remains intact throughout the transportation process.
- For storage, it is highly recommended to store the valves dark and cool areas. This precaution is essential to minimize rubber aging, as rubber is an organic material that may experience a reduced lifespan when exposed to light and warm ambient temperatures.
- Furthermore, during valve storage, it is crucial to position the valve disc in a slightly open position, maintaining an angle between 5 to 10 degrees. Refer to **Figure 1** for a clearer understanding of the recommended valve disc position.

**Figure 1: Recommended Valve Disc Position during Storage**



**FIGURE 1**

## PRODUCT DESCRIPTION

Wafer butterfly valves with epoxy-coated ductile iron bodies are designed to control various media in commercial and industrial applications. Valve mounts between two standard ANSI 125/150, DIN PN10/16 and other international flanges. Seat-to-flange seal eliminates the need for flange gaskets. The disc is precision machined 1.4408 (CF8M). The two-piece stem and disc design enhances the flow capacity and reduces turbulence.

## SPECIFICATION

<b>VALVE BODY</b>	Epoxy coated ductile iron GGG40
<b>DISC</b>	1.4408 stainless steel (CF8M)
<b>DISC SEAT OPTIONS</b>	EPDM, NBR (Buna-N), FKM, VMQ, PTFE
<b>STEM SEALS</b>	O-ring (same material as seat)
<b>STEM</b>	420SS
<b>BEARINGS</b>	PTFE Graphite reinforced
<b>FASTENERS</b>	Stainless Steel

**EPDM** : -20 to 120°C , **Buna-N** : -15 to 85°C , **FKM**: -15 to 180°C , **VMQ**:-30 to 200°C , **PTFE**:-20 to 200°C

## PRECAUTIONS BEFORE INSTALLATION

Before proceeding with the valve installation, it is of paramount importance to carefully read and fully comprehend the instruction manual. Pay special attention to the safety guidelines and precautions outlined in the manual, both before and during the installation process. Adhering to the instructions provided in the installation manual will facilitate a smooth and precise installation of the valve, ensuring its proper functioning and safe operation.

## INSPECTION OF VALVE

Valve manufacturers take measures to minimize shipping damage, but despite their efforts, damage may still occur during transportation and storage. Therefore, it is imperative to conduct a thorough inspection of the valves before installation and promptly notify the manufacturer of any observed damage. Under no circumstances should valves known to be damaged be installed.

Prior to commencing installation, carefully inspect the valve, and remove any transport stops, protective plugs, or covers that might be in place. Additionally, ensure that the inside of the valve body is completely free from any foreign objects or debris. This meticulous inspection will help guarantee the proper functioning of the valve and prevent potential issues during its operation.

## CONFIRMATION OF VALVE WORKING CONDITIONS

1. **Valve Specifications Check** : Thoroughly examine the butterfly valve's identification plate and accompanying documentation to ensure it adheres to the required specifications, encompassing critical aspects like pressure rating, temperature range, flow capacity, and media compatibility.
2. **System Parameters Verification** : Verify that the prevailing parameters of the system, including pressure, temperature, and fluid characteristics, fall well within the butterfly valve's designated working range. It is essential to ensure that the valve is capable of handling the anticipated conditions without surpassing its operational limits.
3. **Installation Inspection** : Conduct a meticulous assessment of the butterfly valve's installation to ensure precision and secureness. Verify that all connections and seals are appropriately positioned, and meticulously inspect for any indications of potential leaks or misalignment.
4. **Valve Operation Observation** : Actuate the butterfly valve, examining its performance during both open and closed positions. Pay close attention to smoothness, responsiveness, and the absence of any hindrance such as sticking or binding.
5. **Functional Testing** : Execute comprehensive functional tests to replicate the real-world operating conditions. During these tests, closely monitor for any irregularities, unusual noises, or excessive vibration.
6. **Valve Performance Monitoring** : Regularly monitor the performance of the butterfly valve during normal system operation. Keep a vigilant eye on pressure, temperature, and flow levels, and make necessary adjustments as dictated by the operational requirements.
7. **Routine Maintenance** : Implement a well-structured maintenance schedule, encompassing thorough inspections and servicing of the butterfly valve. Address any signs of wear, damage, or alterations in performance promptly and effectively.
8. **Observation Documentation** : Maintain comprehensive records of all observations related to the butterfly valve, encompassing performance evaluations, inspection findings, and maintenance activities. This meticulous documentation aids in tracking the valve's condition over time and streamlines troubleshooting efforts, if required.

## INSTALLATION

### WITH CAUTION :

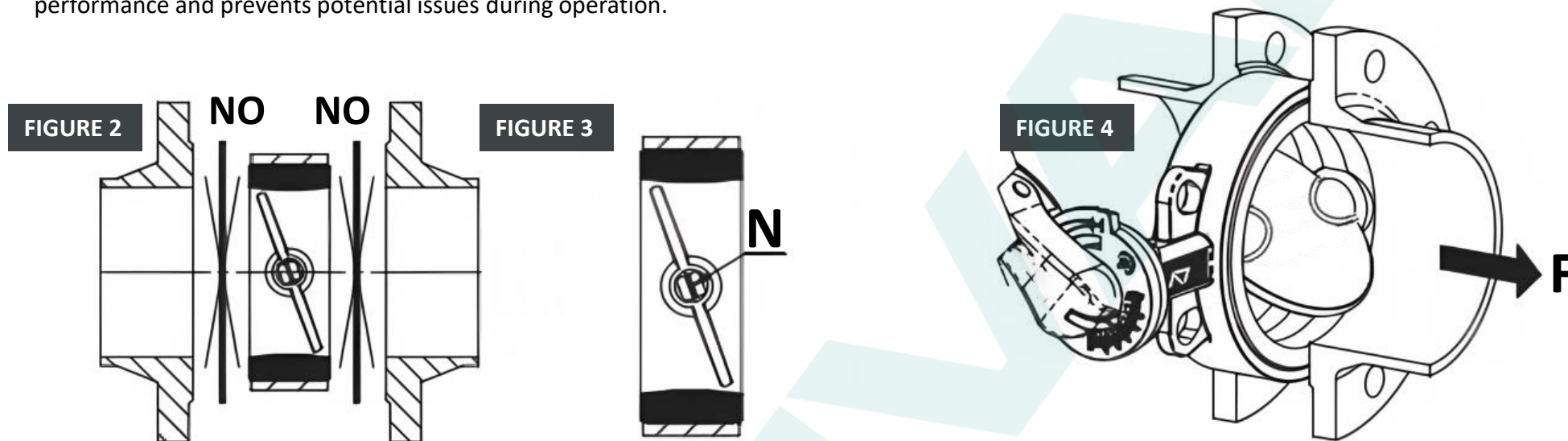
1. During the installation process, exercise caution and handle the valve with care to prevent any damage or mishandling.
2. Avoid welding the flanges directly to the piping after installing the valve, as this can cause adverse effects on its performance.

### BEWARE OF WATER HAMMERS :

1. Water hammers can lead to severe damage and ruptures in the system. Take precautions to minimize the impact of water hammers on the valve's integrity.
2. Inclination, twisting, and misalignments in the piping can subject the valve to stress once installed. To mitigate these effects, it is advisable to use elastic joints to absorb and reduce stress as much as possible.

### VALVE POSITIONING :

1. After installation, ensure that the disc of the valve is positioned partially open (**Refer to Figure 2**). This recommended positioning allows for optimal performance and prevents potential issues during operation.



2. Valve Stem Notch and Mounting : The valve stem is equipped with a machined notch N (**Refer to Figure 3**), which serves as an indicator for the disc position. Pay close attention to this notch when mounting the levers and actuators to ensure correct alignment.

The valve can be mounted with the stem axis either horizontally or vertically. In cases where the fluid contains suspended solid particles (e.g., sand, impurities), it is recommended to install the valve with its axis in a horizontal position. Ensure that the bottom end of the disc opens in the direction of flow, denoted as F (**Refer to Figure 4**).

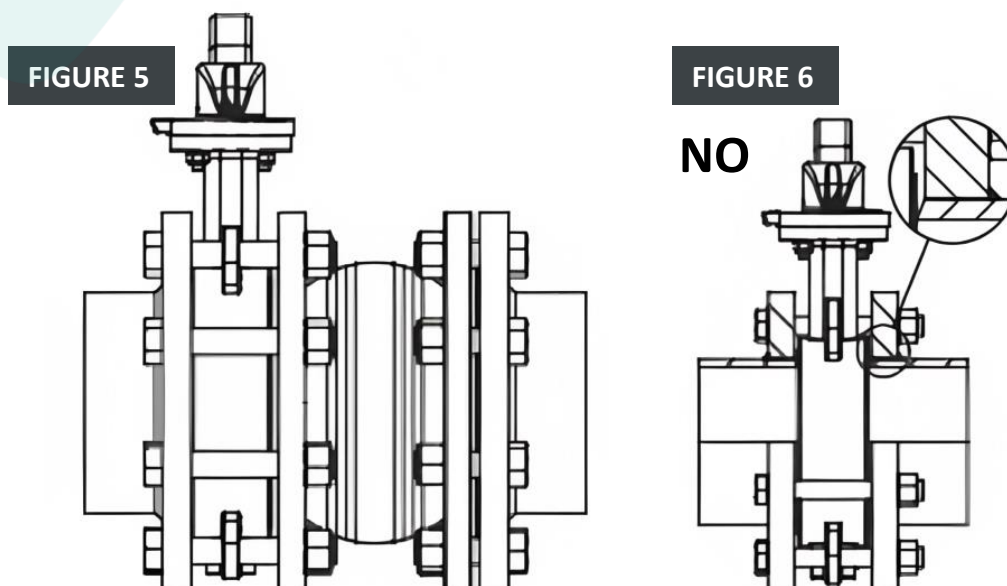
3. Valve Placement : Position the valve between two flanges, ensuring sufficient space to avoid damaging the rubber. Do not use seals between the valve and flanges (**Refer to Figure 2**).

Thoroughly clean the contact surface before installation.

Avoid direct contact between the butterfly valve and a rubber surface, such as expansion joints. The ideal installation is when the rubber comes into contact with metal (**Refer to Figure 5**).

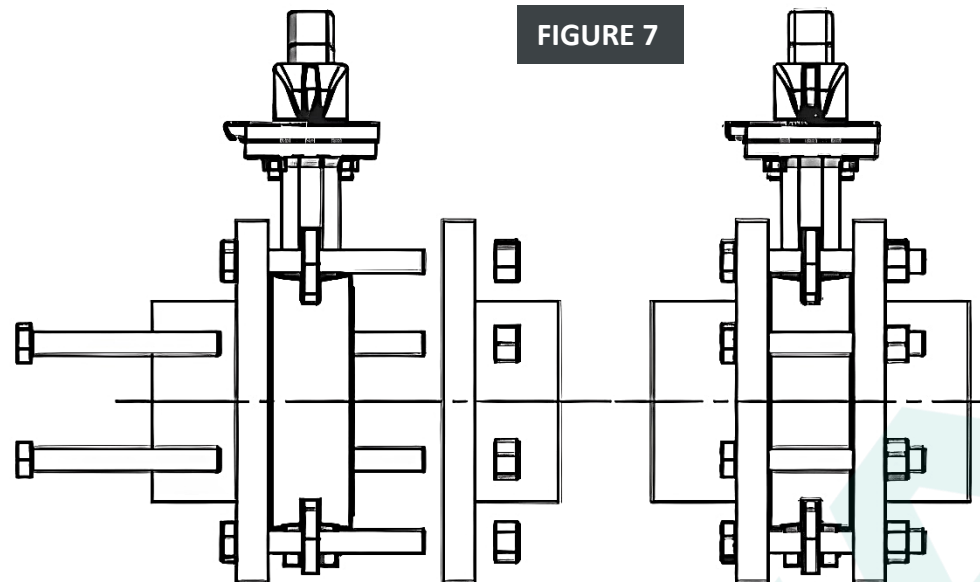
4. Correct Working Diameter : The internal diameter of the pipe must be greater than the value indicated in the chart to ensure proper functioning of the valve.
5. Avoid Welding Flanges to the Tube : If the valve has already been installed, refrain from welding the flanges to the tube. Use the flanges specified in the chart whenever possible.

When using flat flanges for welding (EN 1092 01 type), ensure perfect centering between the flange and valve, and weld exactly edgewise to the flange. Prevent protrusions or sharp edges on the piping from causing damage to the rubber surface of the valve (**Refer to Figure 6**).



## INSTALLATION

- Centering the Valve : When using water type valves, ensure the valve is centered on the holes for proper alignment.
- Bolting Procedure : Tighten the bolts crosswise and progressively to evenly distribute pressure before the valve body and flanges come into contact with each other (Refer to Figure 7).



- Lug Version Check : For the lug version, verify that the screws are of the correct length to allow complete compression of the lining rubber.
- Consider Turbulences : Turbulences in the field can lead to increased erosion and reduce the valve's life-cycle. Install the valve at a distance of at least 1 x DN (Nominal Pipe Diameter) upstream and 2-3 x DN downstream, away from fittings or bends.
- Valve Size in Open Position : Note that in the open position, the valve is larger than the nominal Face to Face value.
- Avoid Interference and Damage : Check for any interference or potential damage to the valve caused by other components in the piping (Refer to Figure 8A).  
If interference exists, use a spacer to ensure the valve operates correctly (Refer to Figure 8B).

