



Operation & Maintenance Manual for Butterfly Valve

Valve: EN 593 Wafer Type Butterfly Valve

Standard: EN 593:2017 Metallic butterfly valves for general purposes

Testing: EN 12266-1;

Face to face: EN558;

Actuator mounting: ISO5211

1. Product Description

This is a wafer butterfly valve complying with EN 593. It is clamped between two pipe flanges by flange bolts for isolation or flow regulation.

- Type: Wafer butterfly valve
- Design Standard: EN 593:2017
- DN: DN40 ~ DN2200
- PN: PN6 / PN10 / PN16 / PN25 / PN40
- Operation: Lever, Gearbox, Pneumatic, Electric actuator (ISO5211 top flange)
- Body: Cast iron / Ductile iron / Carbon steel / Stainless steel
- Seat: Elastomer (EPDM/NBR) or metal seat
- Medium: Water, compressed air, neutral fluids. Check chemical compatibility for corrosive service.

WARNING: Operate only within rated pressure & temperature. Overpressure may cause body rupture and personal injury.

2. Safety Instructions

1. Installation, operation and maintenance must be performed by qualified personnel.
2. Depressurize, drain and cool down pipeline before any maintenance work.
3. Do NOT disassemble valve under pressure.
4. Do NOT exceed nameplate data.
5. Do not over-torque actuator stops. End stops are factory set. Do not adjust without manufacturer approval.

3. Storage & Handling

1. Store indoors, dry, sheltered from sun and rain. Keep disc protective covers in place.
2. Store valve in **half-open position** to avoid permanent seat compression.
3. Lift on valve body only, never lift by shaft or actuator.
4. If stored >12 months, inspect seat and shaft lubrication before commissioning.

4. Installation (Wafer type)

1. Check nameplate DN/PN. Inspect body, disc and seat for damage. Cycle fully open/close to confirm smooth movement. Clean pipeline of weld slag and debris.
2. Can be mounted in any orientation; shaft horizontal preferred.
3. Place valve centered between pipe flanges.
4. Insert flange bolts, tighten gradually and cross-torque evenly. Do not tighten one side fully, which may deform valve body.
5. Install valve in **fully open position** to avoid seat damage during installation.



6. If pipe welding nearby, remove valve to prevent heat damage to rubber seat.
7. Ensure flange bore clearance so disc does not contact flange when rotating.
8. Wafer valve shall NOT be used as end-of-line blind flange under pressure.

5. Operation

Manual / Gearbox

- Clockwise: Close; Counter-clockwise: Open (follow marking on valve).
- Stop at end position, **do not apply extra force**.
- Before commissioning: cycle full stroke twice without pressure to verify position indicator matches disc.
- For throttling: avoid long-term operation below 15% opening, risk of cavitation and seat erosion.

Pneumatic / Electric

Follow actuator manual. Check stroke matching before air/power supply. End stops set at factory. Adjust only after depressurization.

6. Pressure Test (EN12266)

- Shell test: $1.5 \times PN$; Seat tightness test: $1.1 \times PN$.
- Use clean water. Raise pressure slowly. Hold duration per EN12266. Release pressure slowly after test.

7. Maintenance

depressurize & drain before maintenance!

1. Routine check: external leakage, stem packing leakage, actuator condition.
2. Lubricate stem bearings and gearbox periodically.
3. For idle valves: full stroke operation every 6 months to prevent seizure.
4. Replace seat, O-ring or packing when worn. Rubber seats recommended to be reviewed every 2 years.
5. Do not weld or grind valve body.

8. Troubleshooting

Symptom	Possible Cause	Remedy
Internal leakage / not tight	Debris on seat; seat scratch; disc not full closed	Clean pipeline; inspect seat; re-calibrate stroke
Stem stiff / seized	Lack of lubrication; sediment; body distorted	Clean and lubricate; check flange alignment
Stem external leakage	Packing aging	Replace packing
Leakage at flange joint	Uneven bolt torque; misaligned flanges	Cross retighten bolts evenly

9. Disposal

Separate metal parts and rubber/PTFE components. Comply with local waste regulation.