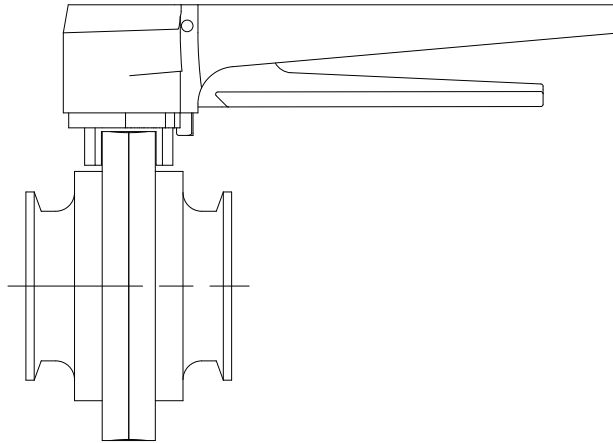


OPERATING MANUAL SANITARY MANUAL BUTTERFLY VALVE



Instructions:

1. Steel & O'Brien manual butterfly valves are designed for use with different standards and require a low torque for opening and closing. This valve can be used with different handles or can be modified for actuation.
2. When installing, determine that the valve disc is set in the correct position, open or closed.
3. When the screws on the body are properly tightened they will bottom out. For proper performance these bolts should be checked before installation.
4. Check the correct open or closed position of the valve as handles may have been adjusted in the field.
5. Before installation, check that the handle is connected tightly to the valve body.
6. Keep all valve surfaces as clean as possible to prevent corrosion.
7. For proper cleaning of all parts and surfaces the valve must be disassembled.
8. Any loose screws or modifications to the bolts may affect valve performance.
9. Check valve seat often to avoid leaking, replace as needed.

Manual Butterfly Valve

Notices:

A. PRECAUTION BEFORE USING:

- a. Stock butterfly valves in a dry area, if possible leave in original packaging prior to use.
- b. To prevent damage, do not stock valves laying on handle.

C. ASSEMBLY ON THE PROCESS LINE:

a. Weld end:

1. Disassemble the weld flanges prior to welding. This will prevent heat damage to the valve seat.
2. Clean all inner surfaces while assembling after welding.
3. Tighten all screws and bolts.
4. Open and close the valve a few times to ensure proper reassembly.

b. Clamp End:

1. Before installing verify correct valve connection size and style with the process line size and style.
2. Properly install the valve according to the connection style.

D. CHANGING HANDLE STYLES:

1. The pull handle and trigger handle can be assembled on the same valve body.
2. Check the dimension of the stem vs. the dimension on the handle to assemble the correct handle.
3. Remove set screws and/or handle bolts.
4. Install the new handle onto the stem. Tighten handle bolts and/or set screws.
5. Open and close the valve a few times to insure functionality.
6. Check the handle position, open or closed, after assembling the valve.

E. WORK TEMPERATURE & PRESSURE:

1. Working pressure (water @68°f)
1" - 4" up to 145 psi (10 bar)

2. Torque required to fully open and fully close valve:

| Size | 1" | 1-1/2" | 2" | 2-1/2" | 3" | 4" |
|--------------------|-----|--------|-----|--------|-----|-----|
| N*m (newton meter) | 13 | 13 | 16 | 18 | 23 | 34 |
| Inch-Pounds | 115 | 115 | 141 | 159 | 203 | 300 |

Note: values may vary depending on seat material

Manual Butterfly Valve

Valve Notes:

Valve seats are available in the following materials:

EPDM

VITON

SILICONE-RED

Valve seats are also offered on their own.

Valve body seats should be inspected regularly for wear.

Body: Precision machined and milled from 304ss, 316ss and 316L.

Body connection can be changed and is available in many variations including:

Weld, Clamp, Bevel Seat, SMS, DIN, 3A and other options available.

Disc is fully machined and has a polished surface of less than $0.6\mu\text{m}$ ($25\text{Ra } \mu\text{in}$)

Disc stem assembly with handle or actuator has a stem top square dimension of 9.5mm, 8mm x 12mm, or 12mm x 12mm depending on the valve size.

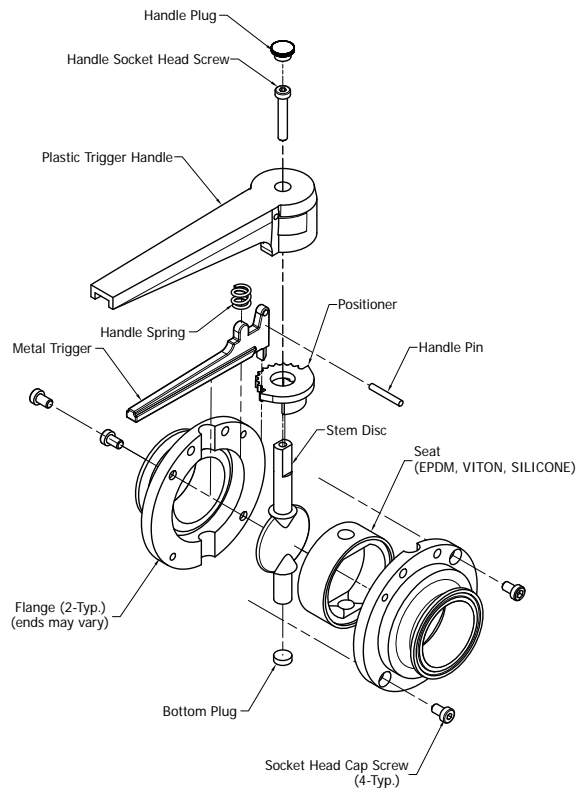
Handles:

Trigger handle is made from reinforced nylon and offers 12 disk positions.

Pull handle is made from stainless steel and offers 2 disk positions.

Trigger handle is also available in 304ss material and offers 12 disk positions.

Handles are interchangeable.

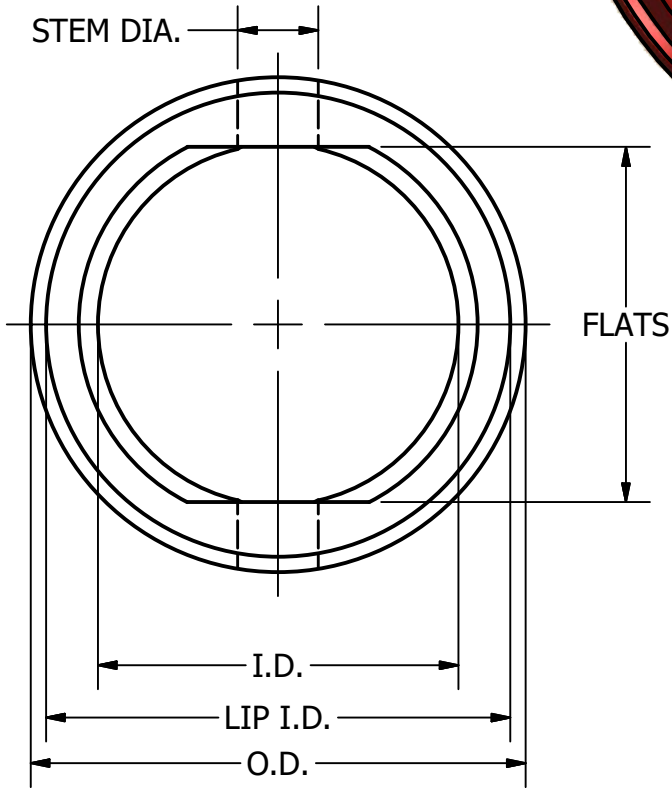
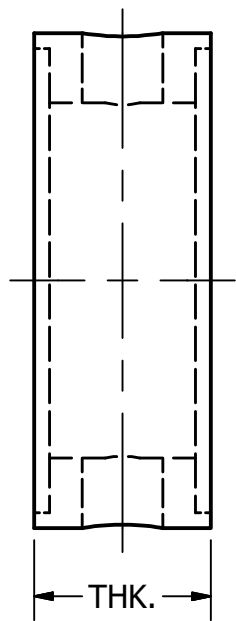


BUTTERFLY VALVE SEAT REFERENCE GUIDE

| SIZE | O.D. | I.D. | LIP I.D. | STEM DIA. | FLATS | THK. |
|------|------|------|----------|-----------|-------|------|
| 1 | 1.50 | 0.82 | 1.28 | .42 | .77 | .92 |
| 1.5 | 2.02 | 1.34 | 1.82 | .42 | 1.34 | .92 |
| 2 | 2.58 | 1.91 | 2.37 | .42 | 1.82 | .92 |
| 2.5 | 2.96 | 2.32 | 2.69 | .42 | 2.25 | .92 |
| 3 | 3.44 | 2.70 | 3.17 | .42 | 2.67 | .99 |
| 4 | 4.72 | 3.87 | 4.35 | .57 | 3.80 | 1.13 |
| 6 | 6.84 | 5.79 | 6.32 | .74 | 5.54 | 1.71 |



*** DIMENSIONS ARE FOR REFERENCE ONLY & MAY VARY ***



| | | |
|--|---|--------------|
| TOLERANCES REFER TO STEEL & O'BRIEN DOCUMENT # QS121 | Steel & O'Brien Mfg. Inc. | |
| | TITLE BUTTERFLY VALVE SEAT REFERENCE GUIDE | |
| | DWG NO: BFV-SEAT REF GUIDE | REV |
| | SCALE: 1 : 1 | SHEET 1 OF 1 |