FE Series Butterfly Valves

Submittal Data Sheet

Job or Customer: .....

Engineer: .....

Contractor: .....

Submitted by: ..... Date

Approved by: ..... Date

Order No: ..... Date

Specification: .....

< STANDARDS >

ASTM D1784

ANSI B16.5

IPEX FE Series Butterfly Valves incorporate many features of our industrial FK valve, yet the all PVC construction and EPDM liner make this valve the perfect choice for water and light industrial applications. The special trapezoid shape of the liner and serrated body cavity guarantee a bubble tight seal while keeping break-away torque at an absolute minimum. This versatile valve features double self-lubricating seals, direct actuator mount capability, and the option of either a lever handle or mounted gear box. The FE lever handle includes the EasyFit Labeling system for valve identification. FE Series Butterfly Valves are part of our complete systems of pipe, valves, and fittings, engineered and manufactured to our strict quality, performance, and dimensional standards.

VALVE AVAILABILITY

Body Material:	PVC
Disc Material:	PVC
Size Range:	1-1/2" through 12"
Pressure:	232 psi (1-1/2" to 2"), 150 psi (2-1/2" to 8") 75 psi (10" to 12")
Seats:	EPDM
Seals:	EPDM
Body Style:	Wafer
Control Style:	Lever Handle or Mounted Gear Box
End Connections:	Flanged (ANSI 150)

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Valve Selection

Size (inches)	Disc Material	Body Style	O-ring Material	IPEX Part Number	Pressure Rating @ 73°F
1-1/2	PVC	Handle	EPDM	053202	232 psi
2		Handle		053203	
2-1/2		Handle		053842	150 psi
		Gearbox		253842	
3		Handle		053081	
		Gearbox		253081	
4		Handle		053082	
		Gearbox		253082	
5		Handle		053843	
		Gearbox		253843	
6		Handle		053083	
		Gearbox		253083	
8		Handle		053084	
		Gearbox		253084	
10		Gearbox		052264	75 psi
12		Gearbox		052265	

Note: Size 14" through 24" valves are available upon request.

Size (inches):

- ☐ 1-1/2
- ☐ 2
- ☐ 2-1/2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 8
- ☐ 10
- ☐ 12

Control Style:

- ☐ Lever Handle
- ☐ Mounted Gear Box

IPEX Part Number:

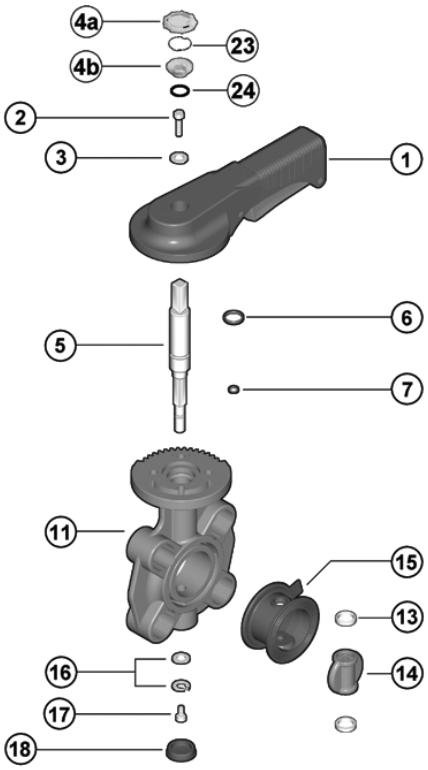
_____

FE Series Butterfly Valves

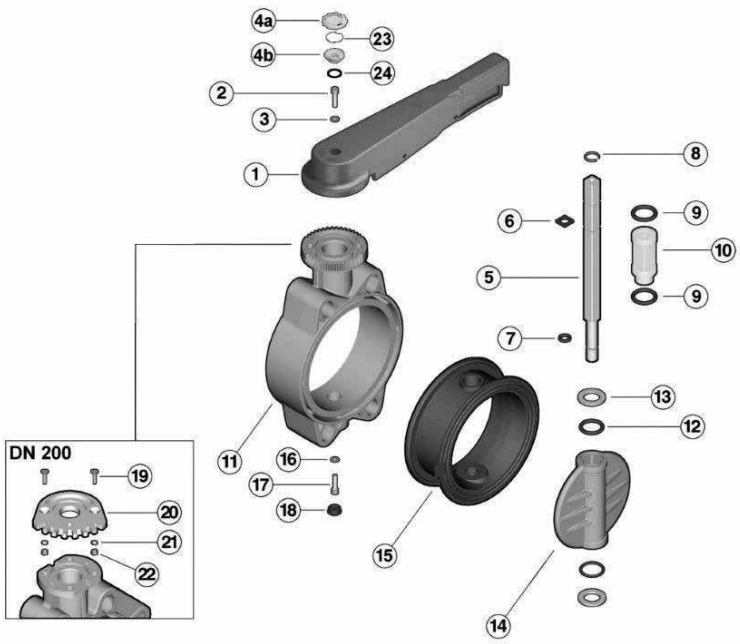
Submittal Data Sheet

Components

Sizes 1-1/2" to 2"



Sizes 2-1/2" to 8"



#	Component	Material	Qty
* 1	handle	PVC	1
2	screw	SS	1
3	washer	SS	1
4	cap	PE	1
4 a,b	transparent service plug	PVC	1
* 5	shaft	zinc plated steel	1
* 6	shaft o-ring	EPDM	1
* 7	shaft o-ring	EPDM	1
8	retaining ring	SS	1
* 9	bushing o-ring	EPDM	2
10	bushing	Nylon	1
11	body	PVC	1
* 12	disc o-ring	EPDM	2

#	Component	Material	Qty
* 13	anti-friction ring	PTFE	2
* 14	disc	PVC	1
* 15	primary liner	EPDM	1
16	washer	SS	1
17	screw	SS	1
18	cap	PE	1
19	screw	SS	2
20	pad	PVC	1
21	washer	SS	2
22	nut	SS	2
23	tag holder	PVC	1
24	seal (o-ring)	NBR	1

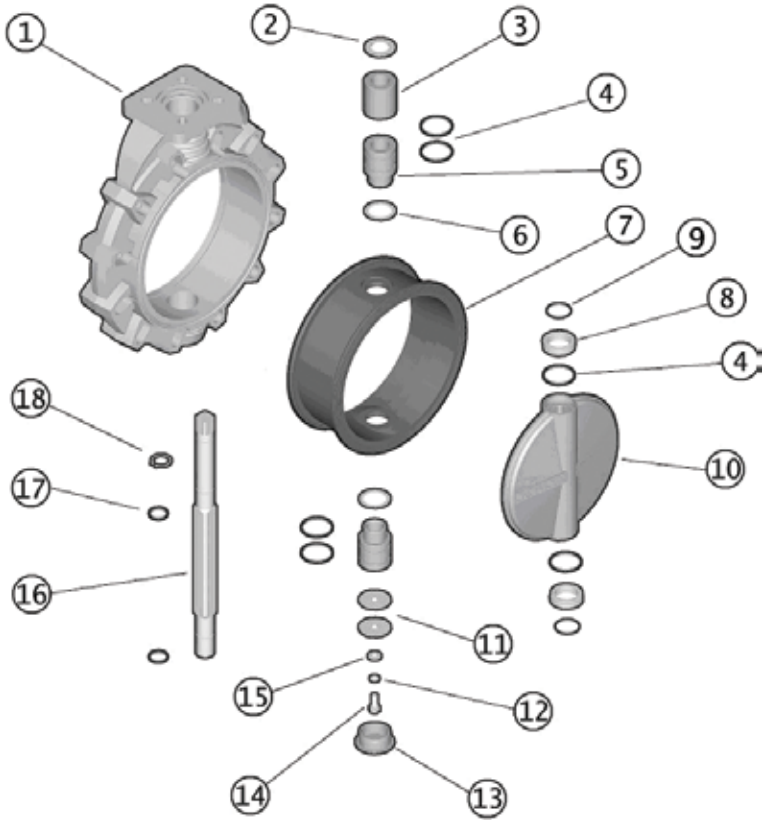
* Spare parts available

FE Series Butterfly Valves

Submittal Data Sheet

Components

Sizes 10" to 12"



#	Component	Material	Qty
1	body	PVC	1
2	washer	SS	1
3	bushing	PP	1
* 4	bushing o-ring	EPDM	4
5	bushing for o-ring	PP	2
6	washer	PTFE	2
* 7	primary liner	EPDM	1
* 8	anti-friction ring	PTFE	2
* 9	disc o-ring	EPDM	2
* 10	disc	PVC	1
11	washer	SS	2
12	washer	SS	1
13	cap	PE	1
14	screw	SS	1
15	washer	SS	1
* 16	shaft	Zinc Plated Steel	1
* 17	shaft o-ring	EPDM	2
18	retaining ring	SS	1

* Spare parts available.

FE Series Butterfly Valves

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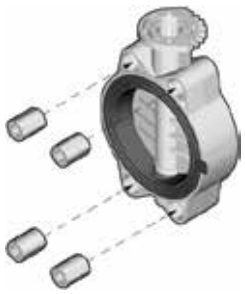
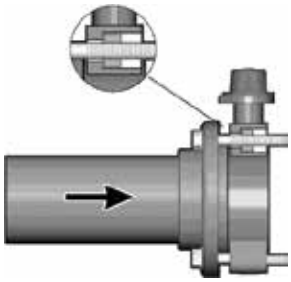
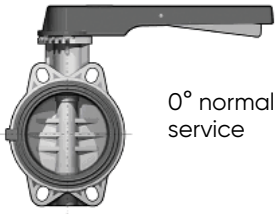
Installation Procedures



1. For the lever handle style, attach the handle (part #1 on previous pages) to the valve body (11) using the supplied bolt (2) and washer (3). Affix the cap (4) over the bolt.
2. **Ensure that the length of the bolts is sufficient for the size of valve being installed. Due to the varying designs of plastic flanges, there is no recommended minimum length. However, a length that results in at least 5 exposed threads on each side should be sufficient**.
3. Please refer to the appropriate application sub-section:
   a. For typical inline installation, ensure that the disc is in the partially closed position then carefully insert the valve into the piping system between the two flanges. **Insert the bolts, washers, and nuts (if necessary), then hand tighten. Take care to properly line up the valve and flanges as any misalignment may cause leakage**.



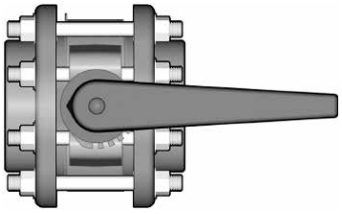
   b. For lugged version end of line installation, insert the necessary steel lugs into the valve body. Ensure that the disc is in the partially closed position then carefully position the valve on the flange. Insert the bolts, and washers, then hand tighten. **Take care to properly line up the valve and flange as any misalignment may cause leakage**.
4. To avoid damage to the primary gasket, cycle the valve to the open position before tightening the bolts. For correct joining procedure, please refer to the section entitled, "Joining Methods – Flanging" in the IPEX Industrial Technical Manual Series, "Volume I: Vinyl Process Piping Systems". **The bolts should be tightened in an even pattern to the nominal torque in the table below. These torque ratings are sufficient to maintain a watertight seal at the maximum rated operating pressure**.



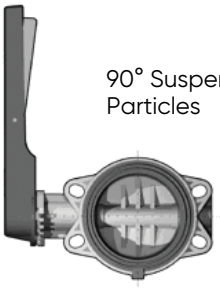
0° normal service

Note: End of line installation will cause the maximum rated pressure to be reduced to the values listed in the table below. If the process media is dirty or contains suspended particles, it is advisable to install the valve in an orientation in which the shaft is not vertical (see diagrams). Over time, particles may collect at the bottom of the valve posing a threat to the seal between the disc, liner, and shaft.

45° Dirty Fluids



Size	Nominal Bolt Torque ((ft-lbs)	Lugged Pmax (psi)
1-1/2	7	90
2	9	90
2-1/2	11	90
3	13	90
4	15	90
5	26	90
6	30	60
8	41	60
10	52	–
12	52	–



90° Suspended Particles

Disassembly

1. If removing the valve from an operating system, isolate the valve from the rest of the system. **Be sure to depressurize and drain the isolated branch before continuing**.
2. Cycle the valve to a partially open position then loosen each bolt holding the valve to the pipe flange(s). Please refer to the section entitled, "Joining Methods – Flanging" in the IPEX Industrial Technical Manual Series, "Volume I: Vinyl Process Piping Systems" for a recommended bolt tightening pattern diagram. Follow the same pattern when disassembling the flanged joint(s) then carefully remove the valve from the line.

Sizes 1-1/2" to 8"

3. For the lever handle style, remove the protection cap (4) then loosen the screw (2) and washer (3) to remove the handle (1).
4. For the mounted gear box style, loosen and remove the bolts and washers fixed to the gear box. Carefully remove the gear box from the valve taking care not to damage the stem.
5. For 8" sizes, loosen and remove the bolts (19), washers (21), and nuts (22) then remove the spacer pad (20) from the valve body.
6. Remove the cap (18) then loosen and remove the screw (17) and washer(s) (16) from the base of the valve body.
7. Carefully pull the shaft (5) out of the valve body then remove the disc (14).
8. Remove the primary liner (15) from the valve body.
9. Remove the nylon bushing (10) and o-rings (9) from the valve body (sizes 2-1/2" to 8").
10. Remove the disc anti-friction rings (13), and o-rings (12, sizes 2-1/2" to 8").
11. Remove the retaining ring (8, sizes 2-1/2" to 8") and o-rings (6, 7) from the shaft.
12. The valve components can now be checked for problems and/or replaced.

Sizes 10" to 12"

3. Loosen and remove the bolts and washers fixed to the gear box. Carefully remove the gear box from the valve taking care not to damage the stem.
4. Remove the cap (13) then loosen and remove the screw (14) and washers (11, 12, and 15) from the base of the valve body (1).
5. Carefully pull the shaft (16) out of the valve body then remove the disc (10).
6. Remove the primary liner (7) from the valve body
7. Remove the upper and lower bushings (3, 5), washers (2, 6), and o-rings (4) from the valve body.
8. Remove the disc anti-friction rings (8) and o-rings (4, 9).
9. Remove the retaining ring (18) and o-rings (17) from the shaft.
10. The valve components can now be checked for problems and/or replaced.

Assembly

Note: Before assembling the valve components, it is advisable to lubricate the o-rings with a water soluble lubricant. **Be sure to consult the "IPEX Chemical Resistance Guide" and/or other trusted resources to determine specific lubricant-rubber compatibilities.**

Sizes 1-1/2" to 8"

1. Insert the primary liner (15) into the valve body (11). **Ensure that the proper holes line up with those on the body**.
2. Properly fit the o-rings (9) on the nylon bushing (10) (sizes 2-1/2" to 8") then insert into the valve body from above.
3. Properly fit the disc o-rings (12, sizes 2-1/2" to 8") and anti-friction rings (13) on the disc (14), then insert into the valve liner taking care to center the holes.
4. Properly fit the o-rings (6, 7) and retaining ring (8, sizes 2-1/2" to 8") in their grooves on the shaft (6), then carefully insert into the valve body from above.
5. Fasten the shaft at the base of the valve body using the screw (17) and washer (16). Affix the cap (18) over the bolt.
6. For 8" sizes, affix the spacer pad (20) to the valve body using the screws (19), washers (21), and nuts (22).
7. For the lever handle style, affix the handle (1) using the screw (2), washer (3), and protection cap (4).
8. For the mounted gear box style, carefully place the gear box on the stem, lining up the holes. Fasten using the necessary bolts and washers.

Sizes 10" to 12"

1. Insert the primary liner (7) into the valve body (1). **Ensure that the proper holes line up with those on the body**.
2. Properly fit the o-rings (4) on the upper and lower bushings (3, 5) then insert into the valve body from above and below along with the washers (2, 6).
3. Properly fit the disc o-rings (4, 9) and anti-friction rings (8) on the disc (10), then insert into the valve liner taking care to center the holes.
4. Properly fit the o-rings (17) and retaining ring (18) in their grooves on the shaft (16), then carefully insert into the valve body from above.
5. Fasten the shaft at the base of the valve body using the screw (14) and washers (11, 12, and 15). Affix the cap (13) over the bolt.
6. Carefully place the gear box on the stem, lining up the holes. Fasten using the necessary bolts and washers.

Testing and Operating

The purpose of system testing is to assess the quality of all joints and fittings to ensure that they will withstand the design working pressure, plus a safety margin, without loss of pressure or fluid. Typically, the system will be tested and assessed in sub-sections as this allows for improved isolation and remediation of potential problems. With this in mind, the testing of a specific installed valve is achieved while carrying out a test of the overall system.

An onsite pressure test procedure is outlined in the IPEX Industrial Technical Manual Series, "Volume I: Vinyl Process Piping Systems" under the section entitled, "Testing". The use of this procedure should be sufficient to assess the quality of a valve installation. **In any test or operating condition, it is important to never exceed the pressure rating of the lowest rated appurtenance in the system.**

Important Points:

- Never test thermoplastic piping systems with compressed air or other gases including air-over-water boosters.
- When testing, do not exceed the rated maximum operating pressure of the valve.
- Avoid the rapid closure of valves to eliminate the possibility of water hammer which may cause damage to the pipeline or the valve.

The FE handle incorporates a locking mechanism that prevents unintentional rotation. The spring-loaded handle must be depressed to cycle the valve. A padlock can be installed through this portion of the handle as an additional safety precaution.

Please contact IPEX customer service and technical support with regard to any concern not addressed in this data sheet or the technical manual.

About IPEX

About IPEX by Aliaxis

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