

# FNW Thermoplastic Butterfly Valve Operating, Installation & Maintenance Manual

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### **Installation Instructions For FNW PVC Butterfly Valves**

FNW RECOMMENDS READING THE FOLLOWING INFORMATION PRIOR TO INSTALLING AND USING OUR VALVES, STRAINERS, CONTROLS AND OTHER ASSOCIATED PRODUCTS.

#### **FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY.**

1. FNW guarantees its products against defective material and workmanship only. FNW assumes no responsibility for damage or injuries resulting from improper installation, misapplication, or abuse of any product.
2. FNW assumes no responsibility for damage or injury resulting from chemical incompatibility between its products and the process fluids to which they are subjected. Compatibility charts provided in FNW literature are based on ambient temperatures of 70F and are for reference only. Customer should always test to determine application suitability.
3. Consult FNW literature to determine operating pressure and temperature limitations before installing any FNW product. Note that the maximum recommended fluid velocity through any FNW product is eight feet per second. Higher flow rates can result in possible damage due to the water hammer effect. Also note that maximum operating pressure is dependent upon material selection as well as operating temperature.
4. FNW products are designed primarily for use with non-compressible liquids. They should NEVER be used or tested with compressible fluids such as compressed air or nitrogen.
5. Systems should always be depressurized and drained prior to installing or maintaining FNW products.
6. Temperature effect on piping systems should always be considered when the systems are initially designed. Piping systems must be designed and supported to prevent excess mechanical loading on FNW equipment due to system misalignment, weight, shock, vibration, and the effects of thermal expansion and contraction.
7. Because PVC and CPVC plastic products become brittle below 40F, FNW recommends caution in their installation and use below this temperature.
8. Published operating torque requirements are based upon testing of new valves using clean water at 70F. Valve torque is affected by many factors including fluid chemistry, viscosity, flow rate, and temperature. These should be considered when sizing electric or pneumatic actuators.
9. Due to differential thermal expansion rates between metal and plastic, transmittal of pipe vibration, and pipe loading forces **DIRECT INSTALLATION OF METAL PIPE INTO PLASTIC CONNECTIONS IS NOT RECOMMENDED**. Wherever installation of plastic valves into metal piping systems is necessary, it is recommended that at least 10 pipe diameter in length of plastic pipe be installed upstream and downstream of the plastic valve to compensate for the factors mentioned above.

### **Installation Instructions**

#### **1. DESCRIPTION**

The FNW PVC wafer style butterfly valve is supplied with guide lugs for making connections to the piping system in which it is installed. These valves are available in PVC, with a choice of flexible seal materials (EPDM, FPM). Installation, operation and maintenance of these valves will be the same regardless of the materials of construction.

## 2. INSTALLATION

### 1.1 Flanged

1.1.0 Valve must be installed between flat face flanges. Do NOT use flange gaskets.

1.1.1 It is recommended to install the valve with the disc in the open position to make sure that there is no misalignment of the flanges.

1.1.2 The valve is bi-directional and can be installed in any position. It can also be mounted at the end of the line or on a tank. When installing the butterfly valve at the end of the line or on a tank, the valve must be installed between two flat face flanges. This method will maintain the valves full pressure rating as well as avoid damage to the seat / liner .

1.1.3 Use well lubricated metal bolts and nuts. Install all flange bolts finger tight. Further tighten using a torque wrench. Torque all bolts to ½ the value shown below in the sequence shown. Repeat the sequence bringing the torque to the value shown.

### FLANGED CONNECTION:

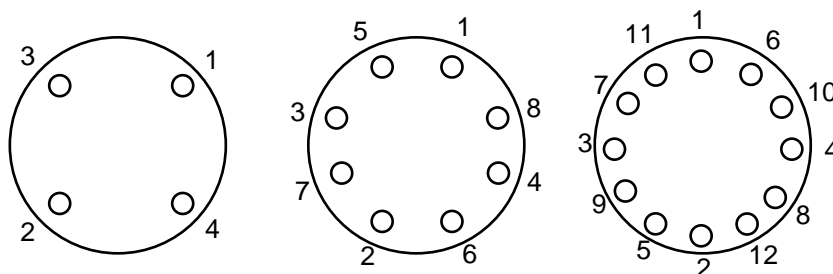
Flange bolts should be tight enough to slightly compress the gasket and make a good seal, without distorting or putting excessive stress on the valve flange lugs. Suitable washers should be used between the bolt head and flange and the nut and flange. Bolts should be tightened in alternating sequence.

### RECOMMENDED FLANGE BOLT TORQUE

FLANGE SIZE	TORQUE FT. LBS.
2"	20 - 30
2 ½"	20 - 30
3"	20 - 30
4"	20 - 30

FLANGE SIZE	TORQUE FT. LBS.
6"	33 - 50
8"	33 - 50
10"	80-110
12"	80-110

### RECOMMENDED FLANGE BOLT TORQUE SEQUENCE



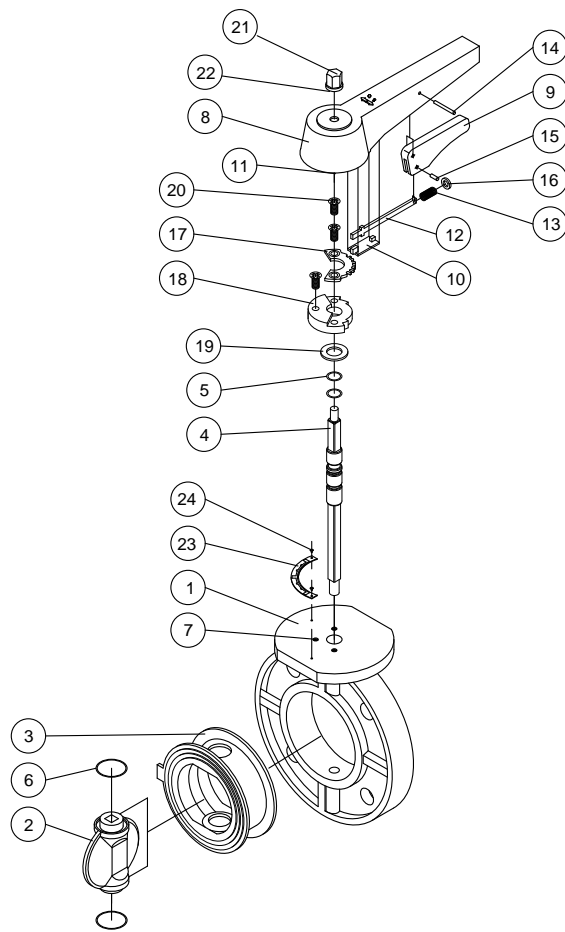
NOTE: USE WELL LUBRICATED METAL BOLTS AND NUTS.

## 2. VALVE OPERATION

2.1 The butterfly valve is opened and/or closed by turning the handle. Lift the declutch lever and turn the lever clockwise to open and counter clockwise to close

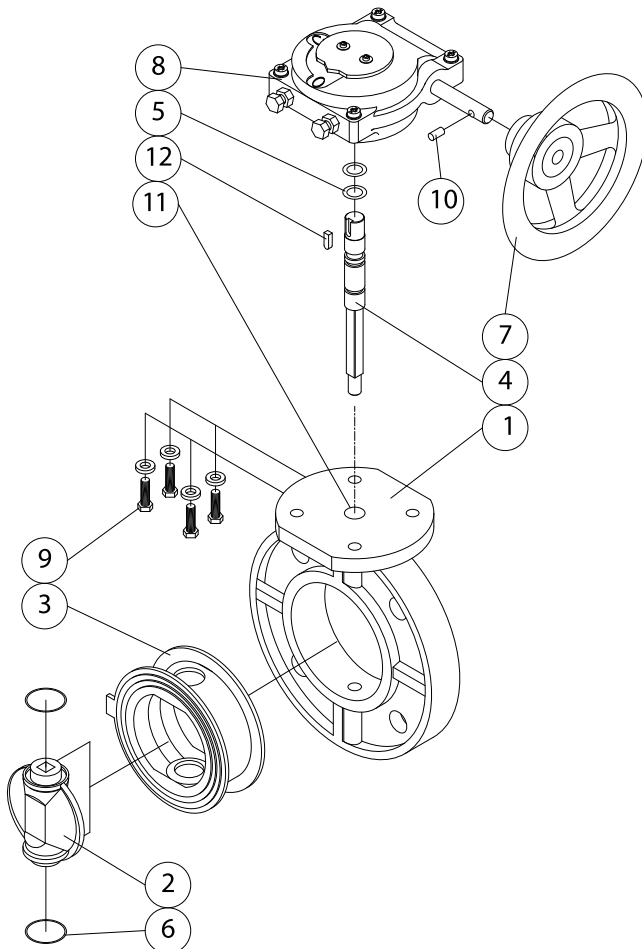
2.2 The butterfly valve with a gearbox is opened and/ or closed by turning the handle on the gearbox. Turn clockwise to open and counter clockwise to close

FNW RECOMMENDS EXTREME CAUTION MUST BE TAKEN WHEN WORKING ON THIS VALVE. THE PIPING SYSTEM MUST BE DEPRESSURIZED AND DRAINED. PROPER CARE MUST BE TAKEN. CONSULT M.S.D.S. (MATERIAL SAFETY DATA SHEETS) INFORMATION REGARDING YOUR SPECIFIC APPLICATION AND MEDIA



## Parts List - Lever Handle

NO	PART	MATERIAL	QTY
1	BODY	PVC	1
2	DISC	PVC	1
3	SEAT SEAL	EPDM,FPM	1
4	STEM	SUS	1
5	"O"-RING	EPDM,FPM	2
6	"O"-RING	EPDM,FPM	2
7	INSERTED NUT	C3604	3
8	LARGE HANDLE	PP	1
9	SMALL HANDLE	PP	1
10	SPRING LOCK	PP	1
11	HANDLE INSERT	SUS	1
12	HANDLE LEVER	SUS	1
13	SPRING	SUS	1
14	SPRING PIN	SUS	1
15	SPRING PIN	SUS	1
16	WASHER	SUS	1
17	LOCKING PLATE	SUS	1
18	GEAR SEAT	PVC	1
19	WASHER 2"-5"	SUS	1
20	BOLT	SUS	3
21	NUT	PVC	1
22	INSERT NUT	C3604	1
23	LEVEL	SUS304	1
24	RIVET	SUS	2



## Parts List - Gear Operated

Number	Description	Material	Qty
1	Body	PVC, CPVC, PP, PVDF	1
2	Disc	PVC, CPVC, PP, PVDF	1
3	Seat Seal	EPDM, VITON	1
4	Stem	Stainless Steel - 304	1
5	O-Ring	EPDM, VITON	2
6	O-Ring	EPDM, VITON	2
7	Hand Wheel	FC - Cast Iron	1
8	Gear Box	FC - Cast Iron	1
9	Bolt & Washer	Stainless Steel - 304	4
10	Spring Pin	Stainless Steel - 41	1
11	Packing	EPDM	1
12	Key	Stainless Steel - 45C	1