



Factory Direct Pipeline Products, Inc.

Post Office Box 182 • Columbia NJ 07832 • P.908.496.9020 • F.908.496.8080 • <http://www.fdpp.com>

FACTORY DIRECT PIPELINE PRODUCTS, INC. BUTTERFLY VALVES

All Black Polypropylene Butterfly Valves
Designed for installation in fiberglass, plastic and metal piping systems
INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

PLEASE READ THE FOLLOWING INFORMATION PRIOR TO INSTALLING AND USING FACTORY DIRECT PIPELINE PRODUCTS, INC. VALVES, STRAINERS, FILTERS, AND OTHER ASSOCIATED PRODUCTS. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY.

1. Factory Direct Pipeline Products, Inc. guarantees its products against defective material and workmanship only. Factory Direct Pipeline Products, Inc. assumes no responsibility for damage or injuries resulting from improper installation, misapplication, or abuse of any product.
2. Factory Direct Pipeline Products, Inc. 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 Factory Direct Pipeline Products, Inc. literature are based on ambient temperatures of 70F and are for reference only. Customer should always test to determine application suitability.
3. Consult Factory Direct Pipeline Products, Inc. literature to determine operating pressure and temperature limitations before installing any Factory Direct Pipeline Products, Inc. product. Note that the maximum recommended fluid velocity through any Factory Direct Pipeline Products, Inc. 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. Factory Direct Pipeline Products, Inc. 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 Factory Direct Pipeline Products, Inc. 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 Factory Direct Pipeline Products, Inc. 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, Factory Direct Pipeline Products, Inc. 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

Factory Direct Pipeline Products, Inc. Butterfly Valves should be installed between two pipe flanges. In dead end service, it is recommended they be installed between one pipe flange and a downstream companion or blind flange. The use of additional gaskets are not necessary and not recommended.

When installed between two existing flanges, the flanges should be separated to provide clearance on the face to face of the valve. This will prevent the valve sealing surfaces from distortion during installation. Pipe flanges should be clean and, free of debris including old gasket material. Solid flat face flanges are recommended.

Factory Direct Pipeline Products, Inc. High Performance Butterfly Valves are designed for use with all pipe flanges that have bores equal to or larger than SCHEDULE 40 PIPE OR AS LISTED BELOW. The inside of the pipe flange **MUST** be chamfered at a 45 degree angle to a diameter listed if the inside bore is smaller than listed. Sharp edges and burrs must be removed.

Valves can be opened to approximately 15° when installed. Do not open fully during installation to prevent damage to the edge of the disc by the mating flanges.

Install the valves using well lubricated studs or bolts and nuts. For plastic flanges metal washers are recommended between nut/bolt head and pipe flange. With a torque wrench, uniformly tighten nut to approximately 10 foot pounds in an alternating sequence, diametrically opposed to the previously tightened nut. Final tightening should be performed in the same sequence following the recommended torque in the following chart.

For all piping installations the maximum allowable displacement is 1/8" off center in any direction. Maximum angular misalignment of 1/16" is allowable.

Normal pipe hanger spacing is recommended. Both sides of the pipe must be supported at each valve location. *Do not allow valve to support the weight of pipe.* When using pneumatic or electric actuators, additional support directly to the actuator is recommended.

RECOMMENDED FLANGE BOLT TORQUE FOR HIGH PERFORMANCE BUTTERFLY VALVES

Size Nominal	Minimum Pipe / Flange Bore (In.)	Stud Dia (In.)	Bolt Dia (In.) Thread	Maximum Thread Depth from Face(in)	Flat Face Type Flange Torque Ft * Lb.
14"	13.12	1	1-8 UNC	None	100
16"	14.35	1	1-8 UNC	2.5	100
18"	16.50	1 1/8	1 1/8-7 UNC	2.5	100
20"	18.50	1 1/8	1 1/8-7 UNC	2.5	100
24"	22.25	1 1/4	1 1/4-7 UNC	2.75	100

NOTE: Recommended torque valves based on well lubricated hardware.



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OPERATION

When installation is complete, check for proper alignment. Fully open and close the valve 3 or 4 times.

Maximum operation pressure at ambient temperature is given below. Maximum continuous operation temperature 160 °F.

See Chart Below for pressure derating at temperature.

Nominal Size	Maximum Working Pressure at Temperature in PSI					
	70°F	80°F	100°F	120°F	140°F	160°F
14"	105	100	75	50	40	35
16"	90	85	65	40	35	30
18"	75	70	55	35	30	25
20"	55	50	40	33	22	20
24"	55	50	40	33	22	20

MAINTENANCE OF THE VALVE

- I. Minimal valve maintenance is required.
- II. Actuator Assembly: Actuators can be removed and installed without removing valve from the line. The line **MUST** be depressurized before any actuator is removed.
 - A. Gear Actuators: remove four (4) hex nuts and the washers that hold the actuator to the body.
 - B. Pneumatic / Electric Actuator: removed by unscrewing either four (4) socket head cap screws or hex nuts which hold the actuator to the valve.

OPERATING PRESSURE TEMPERATURE

