



PVC Swing Check Valves INSTALLATION & OPERATION

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PLEASE READ THE FOLLOWING INFORMATION PRIOR TO INSTALLING AND USING COLONIAL VALVES and STRAINERS, AND OTHER ASSOCIATED PRODUCTS. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY.

1. Colonial Valve guarantees its products against defects in material and workmanship only. Colonial Valve assumes no responsibility for damage or injury resulting from improper installation, misapplication, or misuse of any product.
2. Colonial Valve 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 Colonial Valve literature are based on ambient temperatures of 70°F and are for reference only. Customer should always test to determine application correctness.
3. Consult Colonial Valve literature to determine operating pressure and temperature limitations before installing any Colonial Valve product. Note that the maximum recommended fluid velocity through any Colonial Valve product is FIVE feet per second. Higher flow rates can result in possible damage due to water hammer effect. Also note that maximum operating pressure is dependent upon material selection as well as operating temperature.
4. Colonial Valve 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 gas.
5. Systems should always be depressurized and drained prior to installing Colonial Swing Check Valves.
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 Colonial Valve equipment due to system misalignment, weight, shock, vibration, and the effects of thermal expansion and contraction.
7. Because PVC plastic products become brittle below 40°F, Colonial Valve recommends caution in their installation and use below this temperature.
8. 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 **FLANGED** connections are used.

SOCKET CONNECTION:

Socket end connections are manufactured to ASTM D2467 (PVC) and F-439 (CPVC). Solvent cementing of socket end connections to pipe should be performed per ASTM specifications D2855-87. Cut pipe square. Chamfer and deburr pipe. Surfaces must be cleaned and free of moisture, oil, dirt and other foreign material. Remove Union-nuts and end connectors from valve body. Slide Union-nuts, with threads facing valve, onto pipe to which the end connector is to be cemented. Apply primer to inside socket surface of end connector. Never allow primer or cement to contact valve ball or end connector o-ring sealing surfaces, as leaking may result. Use a scrubbing motion. Repeat applications may be necessary to soften the surface of the socket. Next, liberally apply primer to the male end of the pipe to the length of the socket depth. Again apply to the socket, and without delay apply cement to the pipe while the surface is still wet with primer. Next apply cement lightly, but uniformly to the inside of the socket. Apply a second coat of cement to the pipe, and assemble the end connector to the pipe, rotating the end connector 1/4 turn in one direction as it is slipped to full depth on to the pipe. The end connector should be held in position for approx. 30 seconds to allow the connection to "set". After assembly wipe off excess cement. Follow cement manufacturers guidelines for proper "cure-time", based on the pipe size that you are joining.

THREADED CONNECTION:

Threaded end connections are manufactured to ASTM specifications D2464. F437 and ANSI B1.20.1. Due to the variable quality and tolerances of plastic male threaded nipples, Colonial no longer recommends the use of PTFE (Teflon®) tape. **We recommend using the following thread sealant: IPS WELD-ON All Seal™.** To provide a leak proof joint, the pipe should be threaded into the end connection "hand tight". A strap wrench may be used to tighten the joint an additional 1/2 turn past hand tight. Tightening beyond this point may induce excessive stress that could cause failure.

FLANGED CONNECTION:

Thermoplastic flanges are used where the capability of periodic tear-down of a piping system is required. They have a maximum pressure capability of 150 psi @73°F. Thermoplastic flanges have bolt hole patterns that are compatible with those

found in ANSI B-16.5. Use 1/8" thick full-face elastomeric gaskets to seal the flanges. Gasket hardness is recommended to be between 50 and 80 durometer. Care must be taken when joining flanges together, whether bolting plastic to plastic or metal to plastic. Any undue stress from misalignment, improper tightening or over-torquing can cause flange failure. Use properly sized flat washers under every nut and bolt head. Failure to do so may lead to premature flange failure due to high stress concentrations. In addition, omission of the proper size washers or failure to install the proper washer(s) will void Colonial's product warranty. Bolts and nuts alone create a high stress point that not only cut into the plastic, but can cause failure in the flange. Washers distribute and reduce the bending force. See Table below for proper bolt, nut and washer sizes.

Clean and inspect flange sealing surfaces for dents and any other damage prior to assembly. Bolts and nuts should be clean and lubricated. Loosely assemble flanges with the gasket, making sure bolt holes freely align and that flange faces are parallel to each other. Make sure that one end of the system is free to move enough to allow the faces to come together during tightening. Do not hang excessive weight from a flange. These steps need to be taken to prevent mechanical loading on the pipe and flanges. Tighten nuts in small increments with a wrench holding the bolt head and a torque wrench tightening the nut. Flange faces must remain parallel during bolt tightening. Uneven tightening will damage flanges. Tighten in a sequential, crisscross manner. Tighten to the torque shown in the table below. Over-torqueing will damage flanges.

PIPE SIZE	No. of Bolts	Diam. Of Bolt Circle	Diam. Of Bolt	MIN BOLT LENGTH	HEX NUT SIZE	FLAT WASHER O.D.	REC. TORQUE (ft-lbs)
1-1/2	4	3.88	1/2	3 1/2	1/2	1 1/16	10 - 15
2	4	4.75	5/8	3 1/2	5/8	1 5/16	10 - 15
3	4	6	5/8	4	5/8	1 5/16	20 - 30
4	8	7.5	5/8	4	5/8	1 5/16	20 - 30

ORIENTATION:

Swing check valves are designed for horizontal installation. Check valves must be installed with the Flow-Arrow Indicator pointing in the direction of the flow of the system. The Flow Arrow Indicator must be on the TOP of the valve, so that the hinge will be in the proper position. Valve should be installed with the inlet and outlet at the same level. It is recommended that these valves be installed no closer than 10 pipe diameters from a pump. At least 5 pipe diameters should be between these valves and an elbow. As with all plastic piping, the maximum fluid velocity is 5 feet per second. This velocity minimizes the effects of valve closure and pump start up or shut down.

Pressure rated up to 150 psi in full flow (open) position, and 75 psi in the closed position (non-shock water at 73° F).