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## Single Union Ball Check Valves (Also applies to Single Union Foot Valves)

### INSTALLATION, OPERATION & MAINTENANCE

**PLEASE READ THE FOLLOWING INFORMATION PRIOR TO INSTALLING AND USING COLONIAL VALVE VALVES, STRAINERS, FILTERS, 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 or maintaining Colonial True Union Ball 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 and CPVC 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 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.

#### **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.

**UNION NUT CONNECTIONS:** It is mandatory to avoid the misalignment of the mating pipes, as this can cause excess stress on the valve, and can create a false “hand-tight” condition. With proper alignment, all union nut connections for ½-2" plastic valves should be “hand-tight”. For valves 2" and larger, a strap wrench or approved union-nut wrench may be used to tighten the nut 1/10<sup>th</sup> turn maximum past hand-tight.

**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 flanges. Suitable washers should be used between the bolt head and flange and the nut and flange. Bolts should be tightened in alternating sequence.

**ORIENTATION:**

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 in all plastic piping the maximum fluid velocity is 8 feet per second. This velocity minimizes the effects of valve closure and pump start up or shut down.

Note flow direction when installing. The ball will not float. This valve can be used in an up flow line but not in a down flow line. For horizontal installations, in order to allow ball to seat, a minimum of 12 feet of back-flow head pressure (5 psi) is required to properly seat the ball.

**REPAIR:**

**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.**

System must allow the lateral movement of pipe to create clearance for maintenance. Disconnect from system by loosening union nut of valve. Remove elastomer seat and gland to obtain access to the ball and interior of valve. Reassemble valve with replacement parts as needed. Re-install in the system by aligning and hand-tightening the union nut.

Repair parts are available through your Colonial Engineering distributor.

**FIELD-INSTALLATION OF FOOT VALVE STRAINER**

The foot-valve strainer replaces the union nut on the valve. To install, remove the union nut. Keep elastomer seat in place. Hand-tighten the strainer.