Installation and Maintenance Instructions True Union Style Ball Valves

Tru-Bloc – True Union
Multiport – 3-Way/3-Position
Diverter – 3-Way/2-Position

Installation

Chemtrol Union-End Ball Valves can be fitted with socket, threaded, or flanged end connections. When joining union-end valves, or when flanging end connectors, **never make the joint to the end connectors while they are attached to the valve body.** Remove the union nuts and end connectors from the valve cartridge first. In order to prevent mishaps with the union nut, slide it (smallest bore first) over the pipe or nipple and flange hub (when flanging) before making the joint to the end connector.

Threaded-End Valves–Refer to the plastic thread joining instructions in the Chemtrol Thermoplastic Piping Technical Manual for proper joining techniques. **Caution: Do not overtighten threads. Usually, one to two turns beyond hand-tight using a suitable strap-wrench, if necessary, is sufficient. (ANSI B1.20.1 defines hand-tight as 4 to 5 threads for sizes through 2" and 5 to 6 3/4 threads for sizes over 2".)**

Socket-End Valves–Refer to the solvent cement joining instructions in the Chemtrol Thermoplastic Piping Technical Manual for proper joining techniques. **Caution: Do not allow purple primer or solvent cement to come in contact with the sealing face of the end connectors.**

For PP or PVDF valves, refer to the heat fusion joining instructions in the Chemtrol Thermoplastic Piping Technical Manual for proper joining techniques. **Caution: Chemtrol valves require special heat fusion tools to make proper connections.** These tools can be found in the Chemtrol Fitting Guide.

Flanged-End Valves–Refer to the plastic flange joining instructions in the Chemtrol Thermoplastic Piping Technical Manual for proper joining techniques. **Caution: Do not overtighten flanges. When flanging the fixed end of single union valves, care should be taken to properly align the flange bolt holes, unless Van Stone type flanges are used.**

Valve Cartridge–After allowing the proper joint drying time, end connections may be joined to the valve cartridge. O-rings provide the seal between the valve cartridge faces and the end connectors. *Ensure that these O-rings are clean and in their proper grooves before slipping the valve cartridge between its end connectors.* Slide the union nuts over the end connectors and screw onto the valve cartridge threads, no more than hand-tight. **Caution: Do not overtighten. Once the end connector engages the O-ring seal, no more than 1/8 to 1/4 turn of the union nut will fully compress the O-ring in its groove.** The pipe supports surrounding the valve must be loose and the adjoining piping must be well aligned with the valve. The union nuts cannot be expected to bend and/or stretch the adjoining pipe in order to allow the end connectors to make the required flush seal against the valve cartridge faces.

Adjustment–The "squeeze" on the operating envelope within the cartridge of *Tru-Bloc Model-C Valves* is optimized during assembly at the factory. 100% of these valves are tested for shell leaks and seat leaks in both directions. Since the seat-carrier, with its seat-energizer O-ring, is adjusted to achieve O-ring compression with no leaks, *field adjustment should not be required.*

The seat-carrier in *multiport and diverter valves* is of the Model-A design, meaning that it is not fastened to the valve body with internal threads. Therefore, the *union nut on the valve end with "ADJ" marked on the body serves the dual purpose of external adjustment* for "squeeze" on the operating envelope within the cartridge, preventing leakage across the ball, as well as compression of the face-seal, preventing shell leakage at the cartridge face. Upon installation of multiport or diverter valves, with the handle parallel with the body and fully against the handle/body stop, tighten that union nut on the "ADJ" body end while minutely operating the handle off the stop and back to the stop. The handle turning torque should become snug, but not excessive when the valve is properly adjusted for leak-free operation. If proper adjustment cannot be made by hand-tightening the union nut (valves larger than 1-1/2"), a suitable strap-wrench may be used. **Caution: Do not overtighten. Do not adjust the union nut with the handle in any position other than fully parallel or perpendicular to the body.**

Maintenance
Should a valve need repair, depressurize and drain the system on all sides of the valve. Loosen the valve union nuts and slide them back over the end connectors. To minimize downtime, it may be advisable to have a replacement valve cartridge ready to install in place of the one to be repaired. An advantage of the Chemtrol design is that the current model is interchangeable with all earlier models. Disassemble valve cartridge as follows:

1. Turn handle to be perfectly perpendicular to valve body.
2. Using a Chemtrol spanner wrench[1], unscrew the seat-carrier (Tru-Bloc Model-C) by rotating in the counterclockwise direction. If the valve is of an earlier Tru-Bloc vintage (Model-B), it will be a retaining ring that is removed. If the valve has the original seat-carrier design (Model-A; Tru-Bloc feature not included; multiport or diverter), this step is unnecessary.
3. Insert a soft, blunt instrument into the valve end marked with the FLOW arrow and push the ball out of the valve end marked with the ADJ. arrow. In Model-A and Model-B valves the seat-carrier will also be pushed out by the ball.
4. Remove the handle from the stem by pulling upward and away from the body.
5. Examine all parts and replace any damaged or worn components. If the body is damaged, replacement of the entire valve cartridge is recommended. The current Model-C cartridge is interchangeable with the Model-A or Model-B valve cartridges.

A replacement parts list for all Chemtrol True Union style ball valves may be found on page 2. The valve should be properly identified before selecting replacement parts. **Caution: Valve repair should only be performed by qualified maintenance personnel. Contact our nearest Chemtrol distributor should further information be required.**

PTFE seat kits and O-ring kits are available for all True Union style valves. See page 2 for a list of Components and Construction Materials for more details.

1 The Chemtrol Tru-Bloc Seat-Carrier (Model-C) or Retaining Ring (Model-B) may also be removed using a standard adjustable-face spanner wrench (steel) available from McMaster-Carr (Armstrong brand), or equivalent. Modification, where necessary, is shown below:

Spanner Wrench Identification	Pins		
McMaster-Carr Item No.	Diameter	Width*	Valve Sizes
5481A1	0.18"	0.09"	1/2" - 1 1/2"
5481A2	0.25"	0.22"	2" - 3"
5481A3	0.31"	As Is	4"

* Modified by removing sides of pins equally to produce width. Flats on each pin must be parallel to respective wrench arm.

Do not use or test the products in this catalog with compressed air or other gases.