

PVC and CPVC Tru-Bloc® Ball Valves, True Union Model D 1/2" through 2" Nominal Sizes

250 psi at 73°F water—non-shock—full port

As a result of continuous testing and improvements since the inception of the True Union Ball Valve, three distinct model changes have occurred. The original True Union Model A design had a seat-carrier that slid into the smooth bore of the valve body, held in place by the external nut and end connector. Tightening the external nut adjusted the compression of the PTFE seat onto the ball.

The first major evolution to the True Union Ball Valve, Model B, introduced the Tru-Bloc concept, a functional safety feature. With this design a separate threaded retainer locked the seat-carrier into the body and prevented the seat-carrier from being extruded out of the valve body when the external nut was removed. This change negates the possibility that pressure on the other side could blow the internal components and fluid medium out of the open valve end to injure the service mechanic and/or surrounding equipment.

The Model C seat-carrier design was modified to include an external thread which mated into the valve body threads, eliminating the separate retainer. This modification also eliminated the adjustment of the seat-carrier by the external nut and end connector, resulting in a sealing envelope that was independent of external forces with an energized O-ring under the carrier seat that provided automatic adjustment to compensate for seat wear. This design modification continued the Tru-Bloc feature, preventing the seat carrier from being extruded out of the valve body when the external valve nut was removed.

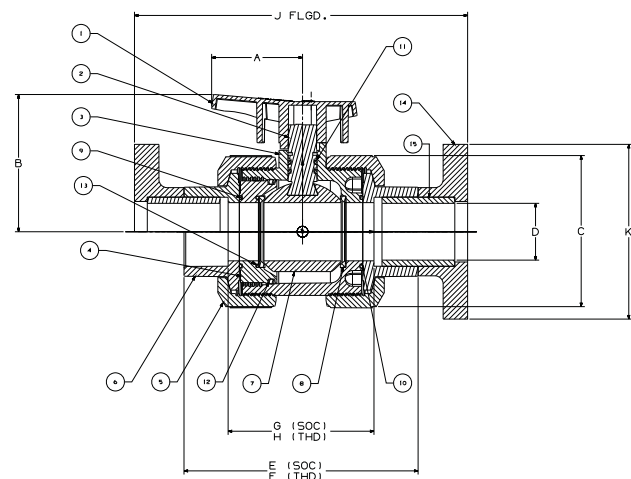
The current Model D ball valve's seat-carrier internal threads and the external union nut threads were strengthened to provide an increased pressure rating of 250 psi at 73°F and improved the pressure ratings at higher temperatures. The end connector design was modified to provide wrench flats. The union nut OD was changed to provide improved gripping for strap wrenches. The Model D design continued the sealing envelope that was independent of external forces with an energized O-ring under the carrier seat that provided automatic adjustment to compensate for seat wear. The Tru-Bloc feature was also retained.

Features

- The laying length of the body and the heavy-duty modified-acme threads in the union connections to the body have not changed in the four distinct models' 40-year history of the valve. This permits fouled valve replacement with a new body cartridge, which will fit the old union nuts. No change in piping length is required.
- Model D's strengthened internal threads and external union nut threads allow for the increased pressure rating of 250 psi at 73°F and improved pressure ratings at higher temperatures.
- Model C and D designs ensure no leakage around the back-side of the seats. Open piping attached to a filled tank will not start to drip-leak following installation and test of a Chemtrol® Tru-Bloc shut-off valve.
- Model C and D designs, with an energizer O-ring beneath the seat-carrier, enable the valve to automatically adjust for seat wear. Adjustments for envelope squeeze on seats and valve testing are done by machine during factory assembly. Upon installation, a hand-tightened union nut serves to compress the face-seal of a Chemtrol® valve.
- Full-port design produces minimum flow restriction with the lowest possible pressure-drop.
- Valves are manufactured and assembled without exposure to silicone compounds.
- Distinctive orange handle indicates "open/close" and direction of flow at a distance. And molded-in arrows on top of the handle dictate rotational direction to personnel for easy operation within 90° stops. For applications requiring handle removal, the D-ring stem flats indicate "open/close" and a molded-in arrow on top of the stem indicates flow direction.

Notes

See page 2 for a list of *Components and Construction Materials*. For more insight in the selection of materials, refer to *Materials*, page 1. *Actuation Mounting Data* and a complete listing of *Optional Accessories* for ball valves begins on page 20. *Installation and Maintenance Instructions* for these valves appear on page 9. For specific relationships of pressure vs. temperature ratings, refer to *Engineering Data*, page 29. For *Chemtrol Valve Standards*, see page 30.



Chemtrol Figure Number

Valve Style	Elasto-meric Trim	PVC			CPVC		
		Soc.	Thd.	Flgd.	Soc.	Thd.	Flgd.
TU/TB	FKM	U45TB-V*	U45TB-V	F45TB-V*	U51TB-V*	U51TB-V	F51TB-V
	EPDM	U45TB-E*	U45TB-E*	F45TB-E	U51TB-E*	U51TB-E	F51TB-E

* As original equipment, 1/2" - 2" True Union Tru-Bloc valve models are supplied with universal connectors (i.e., a set of both socket and thread end connectors).

Dimensions—Weights—Flow Coefficients

	TU Figures Profile					TU Figures End-to-End							Fluid Flow Coefficient
Valve Size	A ¹	B	C	D	K Flgd.	E Soc.	F Thd.	G Soc.	H Thd.	J Flgd.	PVC Approx. ² Wt. Lbs.	CPVC Approx. ² Wt. Lbs.	C _V ³ TU
1/2	2.07	2.16	1.82	.50	3.50	4.20	4.10	2.42	2.44	6.30	0.350	0.370	6.4
3/4	2.74	2.90	2.36	.75	3.88	5.02	4.62	3.02	3.05	7.34	0.690	0.730	38.7
1	2.74	3.07	2.73	1.00	4.26	5.47	5.32	3.22	3.40	8.17	0.960	1.000	58.2
1 1/4	2.62	3.91	4.07	1.25	4.62	6.53	6.07	4.01	4.06	9.41	2.155	2.255	61.7
1 1/2	2.62	3.91	4.07	1.50	5.00	6.89	6.23	4.10	4.18	10.05	2.190	2.315	117.4
2	3.12	4.71	5.23	2.00	6.00	8.04	7.39	5.01	5.19	11.44	4.410	4.670	178.4

¹ Handle is not symmetrical about centerline. Dimensions shown represent the longest operational radius. The handle position is correctly shown for the 1/2" - 3" True Union valve style.

² Weight for 1/2" - 2" TU figures includes both sets of end connectors.

³ C_v values computed for basic valve laying lengths (G & L).