



True Union Ball Valves

1/4" to 6" - PVC, Corzan® CPVC, PPL



Features

- Full Port Design
- Reversible PTFE Seats
- Easy Maintenance
- FPM or EPDM Seals
- Easily Automated
- Double O-Ring Stem Seals
- Adjustable Seat Retainer

Options

- Stem Extensions
- Lockouts
- Spring Return Handle
- Pneumatic Actuators
- Electric Actuators
- 2" Square Operating Nuts
- Drilled Balls for Sodium Hypochlorite Service

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Rugged, Heavy Wall Plastic Construction

Stands up to the most aggressive of applications. Hayward True Union Ball Valves can take the day to day abuse of industrial service and continue to function.

True Union Design

This makes these valves very easy to maintain by allowing for easy removal from a piping system without breaking down piping connections. Just unscrew the two assembly nuts and lift the valve body out of the line.

Advanced Design Features

Hayward True Union Ball Valves are superior performers. A fine-pitch seal retainer thread allows for accurate compensation for seat wear. Reversible seats make it easy to get a damaged valve back in service. Should the seats become damaged they need only to be removed, turned over, and reinstalled to put the valve back on line. These valves feature a double o-ring stem seal for twice the leakage protection of valves with only a single stem seal.

Solid Actuator Mounting Design

For rock-solid actuator mounting, the valve incorporates a unique design that allows the actuator mounting bracket to mount directly to the valve without the need for glued or clamped-on mounting pads. This assures proper alignment of the actuator to the valve without creating any damaging side loads to cause premature stem seal failure. With this design, the valve can easily be adapted to manual operation – should the need ever arise.

Never a Problem with Corrosion

Because of the valves' all plastic construction, they will never rust or corrode – and they can survive corrosive environments without the need for painting or expensive epoxy coating.



Technical Information

**Parts List
True Union Valve**

1. Handle
2. O-ring seals
3. End connector
4. Seal retainer
5. Union nut
6. Ball
7. Body
8. Teflon seat*
9. Stem
10. Actuator Mounting Pad

* O-Ring Backed Seats on 3" & 4" Sizes

Dimensions - Inches / Millimeters

Size	A	B	C	D1	D2	F	Weight (lb / kg)	
							Soc/Thd	Flanged
1/4	4.63 / 117	0.37 / 13	2.25 / 57	3.00 / 76	2.63 / 67	N/A	0.75 / 0.34	N/A
3/8	4.63 / 117	0.50 / 13	2.25 / 57	3.00 / 76	2.63 / 67	N/A	0.75 / 0.34	N/A
1/2 / 20*	4.63 / 117	0.50 / 13	2.25 / 57	3.00 / 76	2.63 / 67	6.75 / 171	0.75 / 0.34	1.00 / 0.45
3/4 / 25*	4.75 / 120	0.75 / 19	2.63 / 67	3.02 / 77	2.81 / 72	7.13 / 181	0.75 / 0.34	1.00 / 0.45
1 / 32*	5.25 / 133	1.00 / 25	3.00 / 76	3.32 / 84	3.05 / 77	8.00 / 203	1.15 / 0.52	2.15 / 0.98
1-1/4 / 40*	6.30 / 160	1.25 / 32	4.00 / 102	3.92 / 100	3.48 / 88	9.19 / 233	2.15 / 0.98	3.50 / 1.6
1-1/2 / 50*	6.75 / 171	1.50 / 38	4.00 / 102	3.92 / 100	3.48 / 88	9.88 / 249	2.15 / 0.98	3.75 / 1.7
2 / 63*	8.00 / 203	2.00 / 51	4.75 / 121	4.43 / 113	4.00 / 101	11.4 / 289	3.80 / 1.7	6.30 / 2.9
2-1/2	10.68 / 271	3.00 / 76	6.40 / 163	5.50 / 140	5.50 / 140	14.38 / 365	10.50 / 4.8	14.50 / 6.6
3 / 90*	10.56 / 268	3.00 / 76	6.40 / 163	5.50 / 140	5.50 / 140	14.44 / 367	10.50 / 4.8	14.50 / 6.6
4 / 110*	12.30 / 329	3.81 / 97	8.56 / 217	6.50 / 165	6.50 / 165	17.13 / 435	17.60 / 8.0	24.80 / 11.3
6	N/A	3.81 / 97	8.56 / 217	6.50 / 165	6.50 / 165	19.19 / 487	N/A	30.75 / 14.0

* Metric End Connections Available in: BSP – Straight Thread, BSP TR – Tapered Thread and Metric Socket

Selection Chart

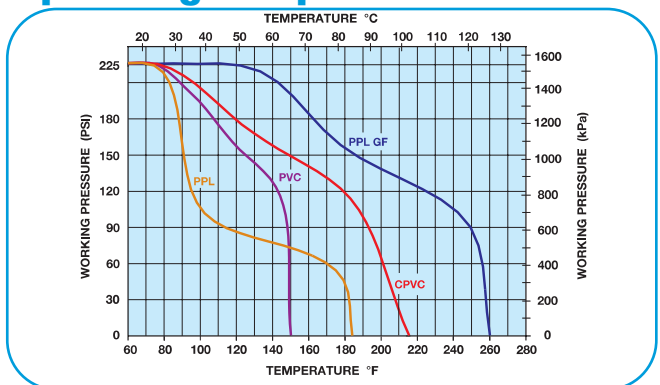
Size	Material	End. Conn	Seals	Pressure Rating
1/4" - 3/8"	PVC	Socket or Threaded	FPM or EPDM	225 PSI @ 70°F Non-Shock
1/2" - 4"	PVC or CPVC	Socket, Threaded or Flanged		
1/2" - 2"	PPL*	Threaded		
6***	PVC or CPVC	Flanged		

* natural PPL - 1/2" to 1-1/2" rated at 150PSI, 2" = 120PSI
 ** 4" Valve venturied to 6"

Cv Factors

Size	Factor	Size	Factor
1/4"	1.0	1-1/2"	90
3/8"	2.8	2"	150
1/2"	8.0	2-1/2"	340
3/4"	16.0	3"	490
1"	29.0	4"	600
1-1/4"	75.0	6"	550

Operating Temperature/Pressure



Pressure Loss Calculation Formula

$$\Delta P = \left[\frac{Q}{Cv} \right]^2$$

ΔP = Pressure Drop
 Q = Flow in GPM
 Cv = Flow Coefficient



ProFile2™ Proportional Control All-Plastic Ball Valves

1" to 6" - PVC, Corzan® CPVC



Two Proportional Flow Control Rates with One Valve

Hayward ProFile2 corrosion resistant, proportional control ball valves provide two linear flow curves – one for fast opening, one for slow opening. The percentage of flow through the valves with either flow curve is equal to the degree of opening. As the valves are opened or closed, the flow varies in direct proportion to the valve opening. This permits predictable, accurate control of the downstream flow rate with a 1/4-turn valve.

Unique-Design “Characterized” Ball

These valves utilize a unique, patented ball with a special “characterized” opening that results in the linear flow rate change. Valves are shipped with the ball installed so that the smaller opening enters the flow first, creating the slow open rate. To switch to the fast opening rate, simply reverse the ball in the valve. Then the larger opening will enter the flow first – creating a large opening with slower changes.

Perfect with Positioners

Hayward ProFile2 Proportional Control True Union Ball Valves can be supplied with optional electric or pneumatic actuators with positioners for automated modulating service applications.

Never a Problem with Corrosion

Because of their all-plastic construction, Hayward ProFile2 ball valves will never rust or corrode – and they can survive corrosive environments and harsh weather conditions without the need for painting or expensive epoxy coating.

Applications

- Methane Gas Recovery
- Fill Station Lines
- Lateral Take Off Line Flow Control
- Flow Reduction in Systems with Oversize Pumps
- Control Flow from Tanks

Features

- All-Plastic Construction
- Precise Flow Control
- True Union Design
- Integrally Molded Stem Support and Mounting Platform for Proper Alignment and Actuator Mounting
- Fully Serviceable Internals can be Inspected and Serviced

Options

- Positioners for Automated Modulating Service Applications
- EPDM Seals
- Manual Handle

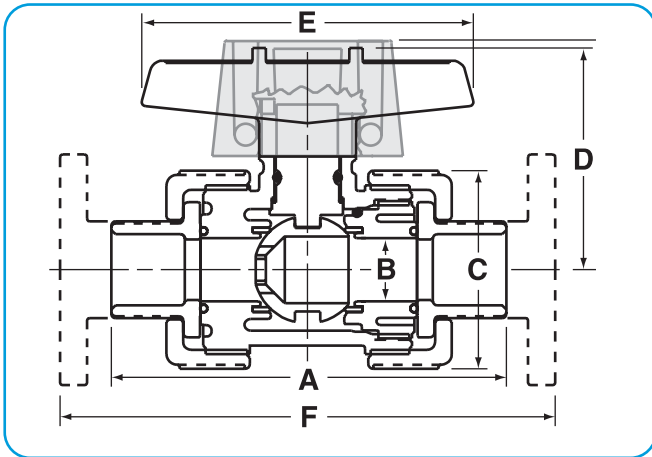


Technical Information

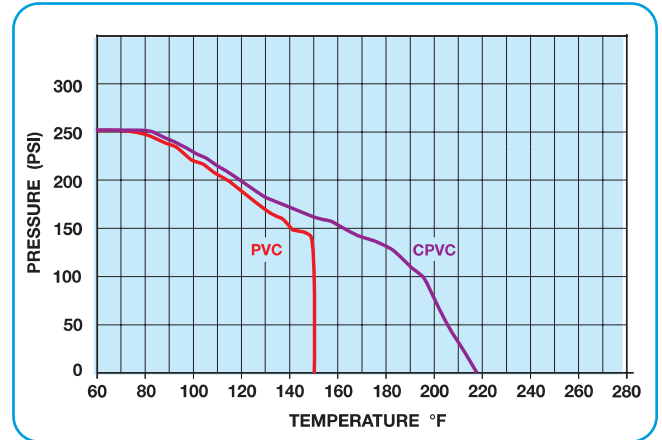
Selection Chart

Size	Material	End Conn.	Seals	Pressure Rating
1, 2, 3, 4"	PVC or CPVC	Socket, Threaded or Flanged	FPM or EPDM	250 PSI @ 70°F
6"*	PVC or CPVC	Flanged		Non-Shock

Dimensions



Temperature/Pressure Chart



Dimensions

Size	A	B	C	D1	D2	E	F
1"	5.25	1.00	3.00	3.32	3.05	4.00	8.00
2"	8.00	1.83	4.75	4.43	4.00	5.00	11.38
3"	10.56	3.00	6.40	5.50	5.50	10.50	14.44
4"	12.94	3.75	8.56	6.50	6.50	10.50	17.13

Pressure Loss Determination

The charts below are used to determine the flow coefficients for ProFile2 Proportional Control Ball valves. The flow coefficient can be used to calculate the pressure loss across the valve at any angular degree of opening using the formula: **Pressure Loss = (Flow in GPM / Flow Coefficient)²**. For example a 1" valve with a "slow open" configuration that is 60° open has a flow coefficient of 8. If the valve were to be installed in a system with a flow rate of 16 gpm, the **Pressure Loss** would be **(16 / 8)² = 4**. The flow coefficients for standard, full flow valves are shown for comparison.

Angular Deg of Opening	Slow Open	Fast Open	Full Port Valve
15°	0.5	1.0	1.2
30°	1.9	3.4	3.5
45°	3.7	7.0	7.5
60°	8.0	13.0	15.3
75°	14.7	18.8	27.8
90°	21.0	21.0	29.0

Angular Deg of Opening	Slow Open	Fast Open	Full Port Valve
15°	1	2.5	10
30°	4	11	16
45°	11	25	35
60°	21	44	72
75°	37	54	117
90°	56	56	150

Pressure Loss Calculation Formula

$$\Delta P = \left[\frac{Q}{C_v} \right]^2$$

ΔP = Pressure drop

Q = Flow in GPM

C_v = Flow coefficient

Angular Deg of Opening	Slow Open	Fast Open	Full Port Valve
15°	3	10	10
30°	12	26	26
45°	30	50	55
60°	60	79	110
75°	89	112	212
90°	128	128	490

Angular Deg of Opening	Slow Open	Fast Open	Full Port Valve
15°	5	18	38
30°	30	55	90
45°	65	114	165
60°	120	183	250
75°	185	200	458
90°	215	215	600

Valves, Fittings and Accessories

Valve-Safe Lockouts, PPL



Features

- For ball valves up to 2"
- Latches and lockable in open/close position
- Simple trigger mechanical design
- Lockout/tagout clasp



Features

- For all ball valves up to 6" size
- Use with up to 3 padlocks