



*Hayward Series*

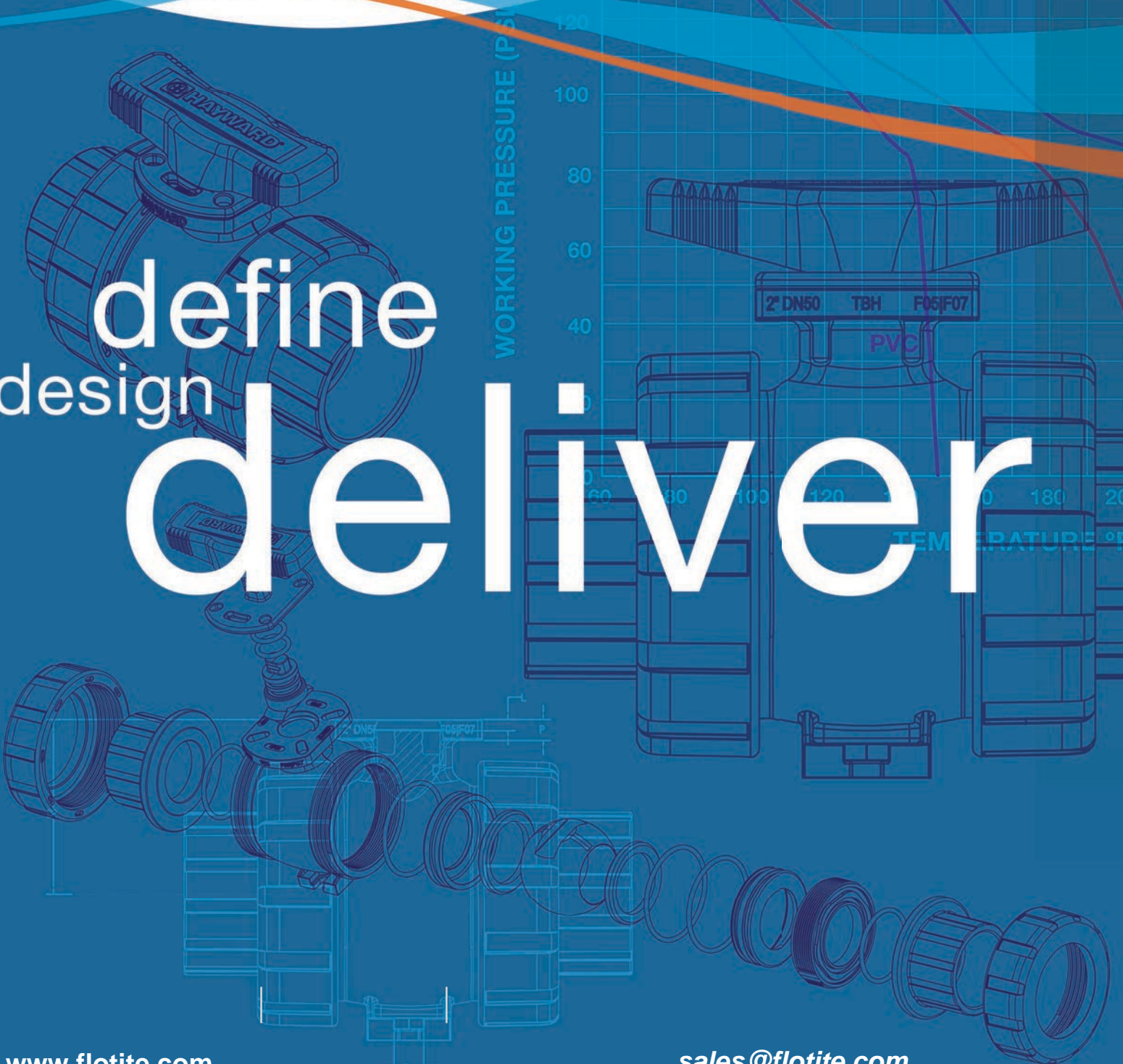
**PVC, CPVC, GFPP**

## True Union Ball Valve Product Guide

FLOW CONTROL

define  
design

deliver



# FTBH Series True Union Ball Valve

## OVERVIEW

**NEW**



**FTBH Series  
True Union Ball Valve**

A new generation of thermoplastic floating ball valves. The FTBH Series features a low maintenance design with new patent pending System2™ Sealing Technology. Assisting users in protecting property and life, a standard integral lock-out feature secures onto the body of the valve. Actuator ready design with ISO 5211 pattern – on all sizes.

Available in 1/4" - 2" / DN8 - DN50 in PVC and CPVC materials with either EPDM or FPM seals.

### KEY FEATURES AND BENEFITS

- System2™ Sealing Technology provides longer cycle life
- 250 PSI / 16 Bar, non-shock at 70°F/23°C full pressure rating
- Consistent operating torque with adjustment-free design
- Lockout/Tagout mechanism that secures directly to valve body for enhanced safety
- Ergonomic handle for improved grip and comfort
- ISO mounting flange simplifies actuation
- Permanent markings, eliminates labels
- Integral footpad for skid or panel mount
- FPM or EPDM seals
- Double O-Ring stem seals
- Reversible PTFE seats – standard
- Easy replacement for existing Hayward TB Series
- NSF/ANSI 61 and NSF/ANSI 372 Listed

### OPTIONS AND ACCESSORIES

- Pneumatic or Electric Actuators
- Stem Extensions
- Manual Limit Switch

### MATERIALS

- PVC per ASTM D1784 Cell Class 12454
- CPVC per ASTM D1784 Cell Class 23447
- GFPP per ASTM D4101 Cell Class 85580 (Handle & Lock Plate)



**FTBH Series  
True Union Ball Valve  
Actuator Ready**

*"Patent Pending"*



BACKED BY HAYWARD FLOW  
CONTROL'S EXCLUSIVE  
THREE YEAR WARRANTY

**910-738-8904**

**WWW.FLOTITE.COM**

**sales@flotite.com**

# FTBH Series True Union Ball Valve

## ACTUATION AND CONTROL OPTIONS



**Buy  
American**



### Pro-Torq Series On/Off/Proportional Electric Actuators **KEY FEATURES**

- On/Off or Proportional Control (2-10 vdc / 4-20mA Inputs & Outputs)
- NEMA 4/4X
- Powder Coated Aluminum Alloy Housing
- Multiple AC and DC Voltages
- Anti-Condensate Heater Standard
- Handwheel or Shaft Manual Override



### PCD/PCS Series Pneumatic Actuators **KEY FEATURES**

- For All Sizes of Ball and Butterfly Valves
- Four-Piston Rack and Pinion Design
- Compact, Lightweight Design
- Position Indicator
- Namur-Style Solenoid Mounting
- Adjustable Travel Stops



### ECP Series Glass Filled Polypropylene Electric Actuators **KEY FEATURES**

- On/Off or Proportional Control (2-10 vdc / 4-20mA Inputs & Outputs)
- NEMA 4/4X
- Auto Switching Voltage
- Corrosion-Resistant GFPP Housing
- LED Status Light
- Anti-Condensation Heater
- Manual Override



### PMD/PMS/PMD4/PMS4 Series Pneumatic Actuators **KEY FEATURES**

- Corrosion-Resistant Thermoplastic Housing in GFPP or Polyamide
- Permanently Lubricated Gear Train
- Two-Piston Rack and Pinion Design
- Namur-Style Solenoid Mounting
- Position Indicator



### EAU1 Series Glass Filled Polypropylene Electric Actuators **KEY FEATURES**

- Unidirectional On/Off Control
- NEMA 4/4X
- 5A 250V End of Travel Switch
- Corrosion-Resistant GFPP Housing
- Direct ISO Mount
- Multiple AC and DC Voltages



### LHB Series Manual Limit Switch **KEY FEATURES**

- Two Adjustable SPDT 10 Amp at 120 VAC Switches (Open/Close Position) - CSA Listed Switches
- For Remote Monitoring of Critical Services
- Robust GFPP Body, Cover and Plate
- 304 Stainless Steel Stem and FPM Seals
- NEMA 4/4X

# FTBH Series True Union Ball Valve

## FEATURES

[WWW.FLOTITE.COM](http://WWW.FLOTITE.COM)

250 PSI /16 Bar Rating,  
Non-Shock at 70°F / 23°C

Ergonomic Handle  
with UV Inhibitor

Lock-Out Plate – Standard

ISO 5211 Top Flange

True Union  
End Connections

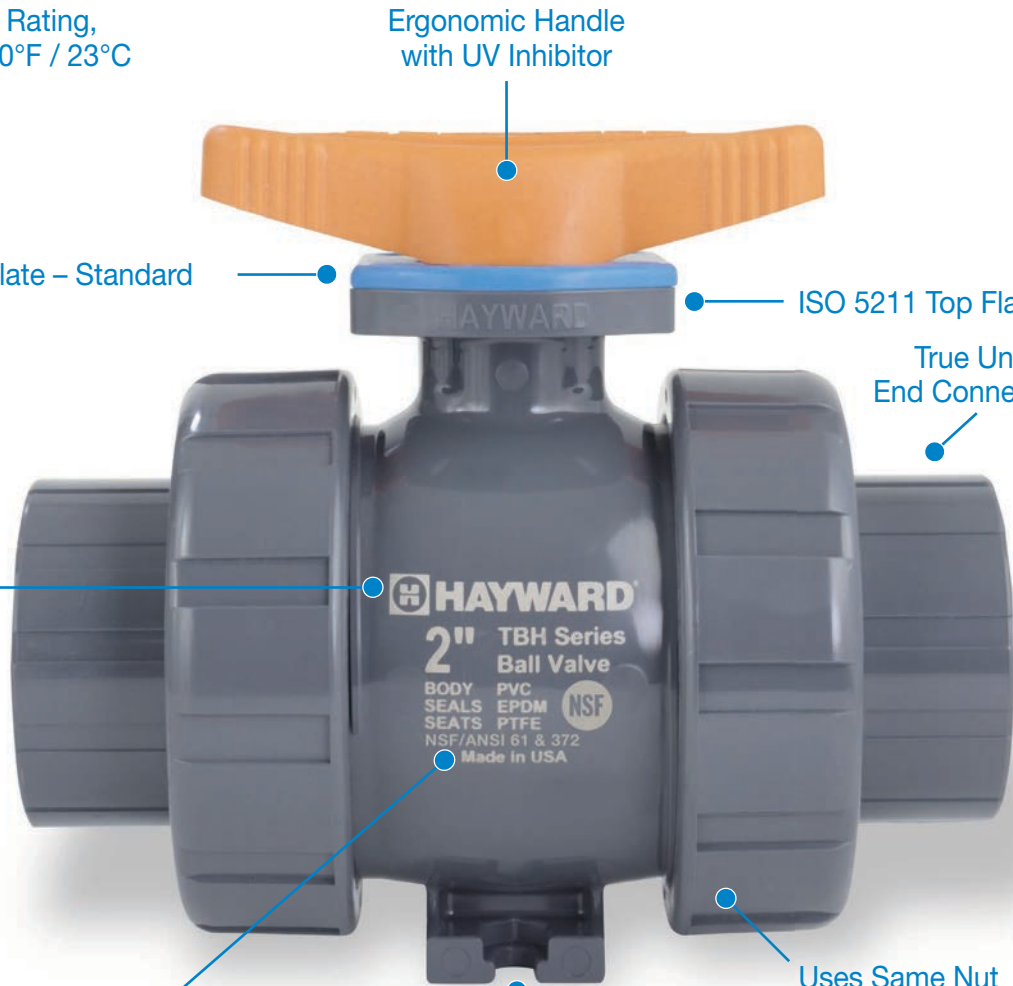
Permanent  
Marking



Made in USA!

Integral Foot Pad

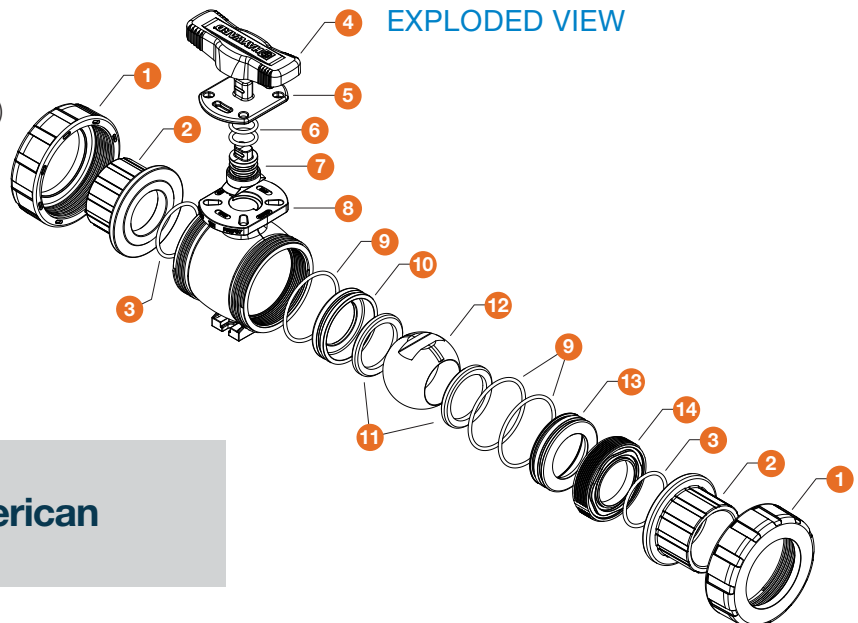
Uses Same Nut  
as Hayward TB Series  
Ball Valve



## PARTS LIST

- |                              |                             |
|------------------------------|-----------------------------|
| 1. Nuts (2)                  | 8. Body                     |
| 2. End Connectors(2)         | 9. Seat Carrier O-Rings (3) |
| 3. End Connector O-Rings (2) | 10. Closed End Seat Carrier |
| 4. Handle                    | 11. Seats (2)               |
| 5. Lock Plate                | 12. Ball                    |
| 6. Stem O-Rings (2)          | 13. Open End Seat Carrier   |
| 7. Stem                      | 14. Seat Retainer           |

## EXPLODED VIEW



**Buy  
American**

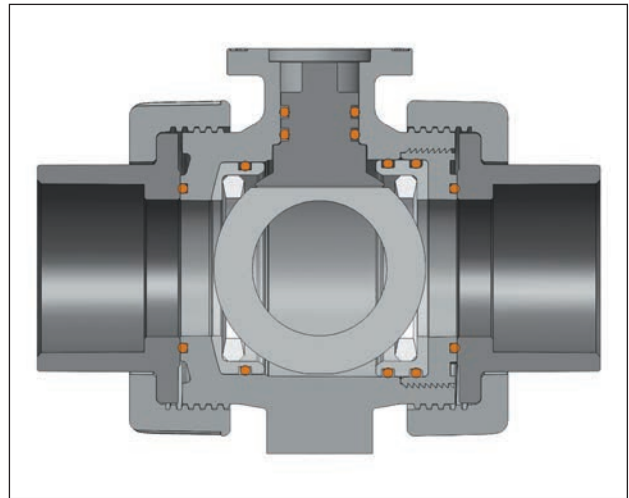
# FTBH Series True Union Ball Valve

## BENEFITS



### Longevity

- New Patent Pending System2™ Sealing Technology
- As with standard floating ball valves, a primary seal is formed between the ball and the downstream seat upon valve closure
- The new System2™ Sealing Technology allows the upstream seat to float against the ball which causes a backup secondary seal between the upstream seat and the ball, and increases the sealing load on the downstream seat
- System2™ Sealing Technology is fully bi-directional
- Pressure rating of 250 PSI / 16 Bar, non-shock at 70°F/23°C
- Decreased maintenance due to System2™ Sealing Technology, requires no adjustment of the seat in service
- System2™ Sealing Technology leads to a facility with less downtime



### Dependability and Comfort

- Ergonomic handle to improve grip
- Symmetric handle for operation from either side of valve, left or right handed
- UV inhibited material for extended life
- Consistent operating torque with adjustment free design
- Designed with no metal fasteners



### Safety

- Facilitates implementation of lockout/tagout
- Accommodates up to 4 different keyed locks for increased protection
- Padlock secures lock plate to body to avoid removal
- Handle position and windows in lock plate indicate valve is open or closed



### Versatility

- Direct mount to actuators with ISO 5211 mounting pads
- Consistent valve torque due to System2™ Sealing Technology
- Actuator Ready valve priced lower than valve with handle and lock plate
- ISO 5211 couplings available in 9mm, 11mm and 14mm
- Integral panel mount facilitates one person installation
- Hex flats engage standard and metric fasteners



## FTBH Series True Union Ball Valve

### ONE VALVE PLATFORM

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### FTBH Series



### FCVH Series



Same FTBH Series System2™ technology with a Profile2™ ball.

### FTBH Series “Z-Ball”



FTBH Series with black handle identifier, drilled ball for sodium hypochlorite applications.

Flow arrow indicates unidirectional seat design.

### Actuator Ready



Optional adapter available.

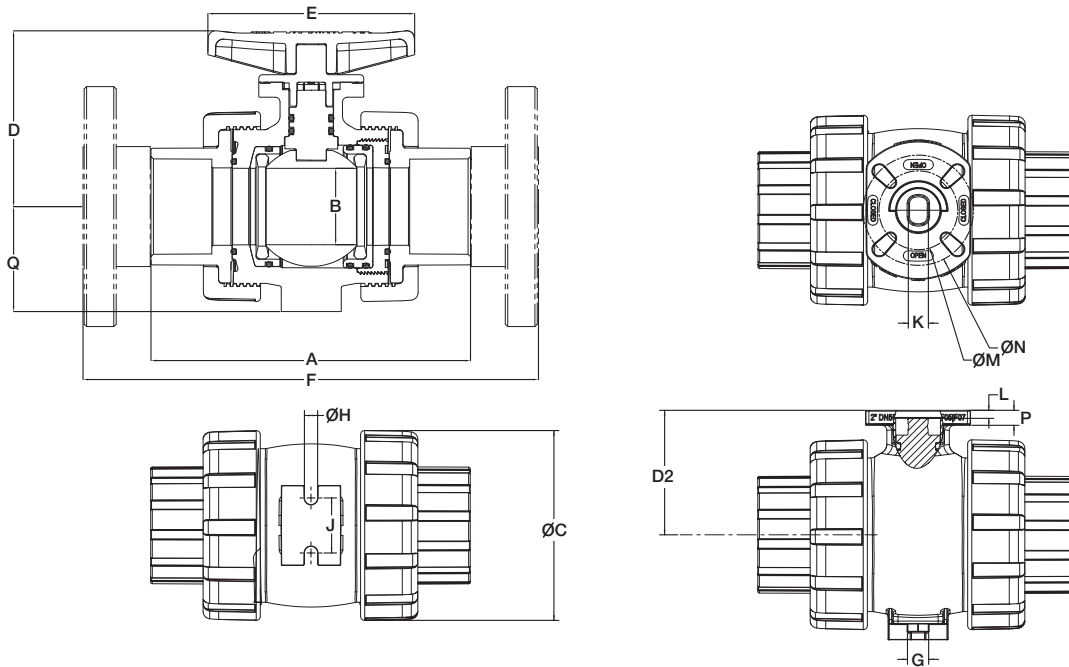
Flo-Tite Valves and Controls provides a range of mounting options to adapt to our actuators or to your preferred actuator. With the FTBH Series ISO top integral flanges, all that is required is just the ISO 5211 coupling and bolting to adapt from the FTBH Series stem to Flo-Tite actuators or those actuators with ISO 5211 square drives.

# FTBH Series True Union Ball Valve

## TECHNICAL INFORMATION



### 2D DRAWINGS



### DIMENSIONS – INCHES / MILLIMETERS

SIZE	A	A1(JIS)	B	C	D1	D2	E	F	G	H	J	K	L	M	N	P	Q
inches / DN / JIS	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm
1/4 / 8 / N/A	4.63 / 118	N/A	0.53 / 13	2.25 / 57	2.82 / 72	1.75 / 44	3.50 / 89	N/A	0.45 / 11	0.27 / 7	0.75 / 19	0.50 / 13	0.17 / 4	1.97 / 50	N/A	0.29 / 7	1.37 / 35
3/8 / 10 / N/A	4.63 / 118	N/A	0.53 / 13	2.25 / 57	2.82 / 72	1.75 / 44	3.50 / 89	N/A	0.45 / 11	0.27 / 7	0.75 / 19	0.50 / 13	0.17 / 4	1.97 / 50	N/A	0.29 / 7	1.37 / 35
1/2 / 15 / JIS15	4.65 / 118	5.27 / 134	0.53 / 13	2.25 / 57	2.82 / 72	1.75 / 44	3.50 / 89	6.65 / 169	0.45 / 11	0.27 / 7	0.75 / 19	0.50 / 13	0.17 / 4	1.97 / 50	N/A	0.29 / 7	1.37 / 35
3/4 / 20 / JIS20	4.79 / 122	5.65 / 144	0.72 / 18	2.62 / 67	2.98 / 76	1.91 / 49	3.50 / 89	7.17 / 182	0.45 / 11	0.27 / 7	0.75 / 19	0.50 / 13	0.17 / 4	1.97 / 50	N/A	0.29 / 7	1.56 / 40
1 / 25 / JIS25	5.34 / 136	6.37 / 162	0.94 / 24	3.00 / 76	3.25 / 83	2.18 / 55	4.00 / 102	8.05 / 204	0.45 / 11	0.27 / 7	1.00 / 25	0.50 / 13	0.20 / 5	1.97 / 50	N/A	0.29 / 7	1.75 / 44
1-1/4 / 32 / JIS32	6.83 / 173	8.03 / 204	1.48 / 38	4.00 / 102	3.89 / 99	2.60 / 66	5.17 / 131	9.61 / 244	0.53 / 13	0.33 / 8	1.38 / 35	0.50 / 13	0.20 / 5	1.97 / 50	2.76 / 70	0.34 / 9	2.25 / 57
1-1/2 / 40 / JIS40	7.39 / 188	8.36 / 212	1.48 / 38	4.00 / 102	3.89 / 99	2.60 / 66	5.17 / 131	10.65 / 271	0.53 / 13	0.33 / 8	1.38 / 35	0.50 / 13	0.20 / 5	1.97 / 50	2.76 / 70	0.34 / 9	2.25 / 57
2 / 50 / JIS50	7.99 / 203	9.57 / 243	1.91 / 49	4.75 / 121	4.40 / 112	3.11 / 79	5.17 / 131	11.51 / 292	0.53 / 13	0.33 / 8	1.38 / 35	0.50 / 13	0.20 / 5	1.97 / 50	2.76 / 70	0.34 / 9	2.63 / 67

\* 1-1/4" and 1-1/2" are 0.56" (14mm) longer than TB Series.

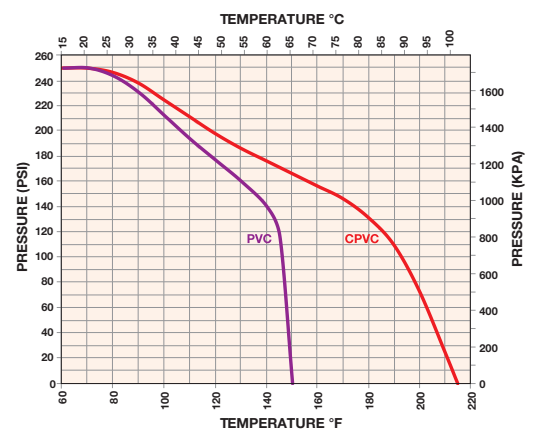
### WEIGHT – LBS / KG

SIZE	Weight with Socket/Threaded Ends	Weight with Flanged Ends	Weight Bare Stem with Socket/Threaded Ends	Weight Bare Stem with Flanged Ends
	lbs / kg	lbs / kg	lbs / kg	lbs / kg
1/2 / 15	0.70 / 0.32	1.12 / 0.51	0.59 / 0.27	1.01 / 0.46
3/4 / 20	0.90 / 0.41	1.50 / 0.68	0.79 / 0.36	1.39 / 0.63
1 / 25	1.18 / 0.54	1.98 / 0.90	1.05 / 0.48	1.85 / 0.84
1-1/4 / 32	2.57 / 1.17	3.51 / 1.59	2.32 / 1.05	3.26 / 1.48
1-1/2 / 40	2.62 / 1.19	3.82 / 1.73	2.37 / 1.08	3.57 / 1.62
2 / 50	3.87 / 1.76	6.37 / 2.89	3.62 / 1.64	6.12 / 2.78

### CV VALUES

SIZE in / DN	Cv VALUES
1/4 / 8	1.0
3/8 / 10	2.8
1/2 / 15	8.0
3/4 / 20	16.0
1 / 25	29.0
1-1/4 / 32	75.0
1-1/2 / 40	90.0
2 / 50	150.0

### PRESSURE / TEMPERATURE CHART\*



\* Flanged valves rated to 150 PSI

# FTBH Series True Union Ball Valve

## SPECIFICATIONS



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### SAMPLE SPECIFICATION

All 1/4" - 2" thermoplastic ball valves shall be manufactured with PVC Type 1, Grade 1 (ASTM D1784, Cell Classification 12454) or CPVC (ASTM D1784, Cell Classification 23447). All sizes shall be of true union design. Valve body shall contain an integral top mounting flange with dimensions and bolt circles conforming to ISO 5211. Valve to include as standard sliding lock-out plate that interlocks with integral flange on body for lock-out / tag-out. The valve has four locations for attaching a padlock. Body shall incorporate molded in foot pad for panel or rail mounting.

All O-rings shall be EPDM or FPM. Seats shall be PTFE as standard. Seats for 1/4" - 2" valves shall be reversible to allow field rebuild. Valves 2" and smaller shall have a floating ball and System2™ seat carrier design that moves with the seat to affect a double seal to flow through a closed valve, and require no adjustment. The handle shall be retained without any metal fasteners and made from GFPP with UV Inhibitor. Balls must be full-port design and fully sphere shape. Stem shall contain double o-rings, and shall be a blowout-proof design. Valve stem design shall be such that any torsional failure occurs outside of the two stem o-rings.

All 1/4" - 2" ball valves shall be pressure-rated for 250 PSI at 70°F non-shock. All sizes of ANSI 150 lb flanged ball valves shall be pressure-rated for 150 PSI at 70°F non-shock. Valves to be NSF/ANSI 61 and NSF/ANSI 372 Listed.

*All ball valves shall carry a three-year warranty, and shall be manufactured by Hayward® Flow Control and in the USA.*

### TYPICAL APPLICATIONS

Typical applications or installations include but are not limited to municipal waste and water treatment, clean water technology, chemical transfer and processing, aquatic and animal life support systems, mining and mineral processing, metal plating / surface finishing, marine, pulp and paper, landfills / environmental infrastructure and other demanding applications.

### PART NUMBER MATRIX\*

SERIES	MATERIAL	SIZE	END CONNECTION	ELASTOMER	OPERATOR	TBH SERIES OPTIONS	OTHER OPTIONS
FTBH	1 PVC	025A 1/4"	ST SOCKET/THREADED	E EPDM	K ACTUATOR READY	0 NONE	OO NONE
FCVH	2 CPVC	037A 3/8"	OS SOCKET	V FPM	0 HANDLE	Z DRILLED BALL FPM**	
		050A 1/2"	OF FLANGED			D DRILLED BALL EPDM**	
		075A 3/4"	BT BSPT - (TAPERED)				
		100A 1"	BS BSPT - (STRAIGHT)				
		125A 1-1/4"					
		150A 1-1/2"					
		200A 2"					
		—					
		015M DN15					
		020M DN20					
		025M DN25					
		032M DN32					
		040M DN40					
		050M DN50					
		—					
		015J JIS16					
		020J JIS20					
		025J JIS25					
		032J JIS30					
		040J JIS40					
		050J JIS50					

\* Consult price list and/or factory. Not all combinations of options are valid or available.

\*\* Flow arrow indicates unidirectional seat design.





Actuator  
Ready



Certified to  
NSF/ANSI 61 & 372

## CVH Series Profile2™ Proportional Control Ball Valves

1/2" TO 2" / DN15 TO DN50 PVC AND CPVC

### KEY FEATURES & BENEFITS

- Profile2™ Characterized Ball
- System2™ Sealing Technology provides longer cycle life
- 250 PSI / 16 Bar, non-shock at 70°F/23°C full pressure rating
- Consistent operating torque with adjustment-free design
- Lockout/Tagout mechanism that secures directly to valve body for enhanced safety
- Ergonomic handle for improved grip and comfort
- ISO mounting flange simplifies actuation
- Permanent markings, eliminates labels
- Integral footpad for skid or panel mount
- FPM or EPDM seals
- Double O-Ring stem seals
- Reversible PTFE seats – Standard
- Easy replacement for existing Hayward TB and CV Series
- NSF / ANSI 61 and NSF / ANSI 372 Listed

### OPTIONS

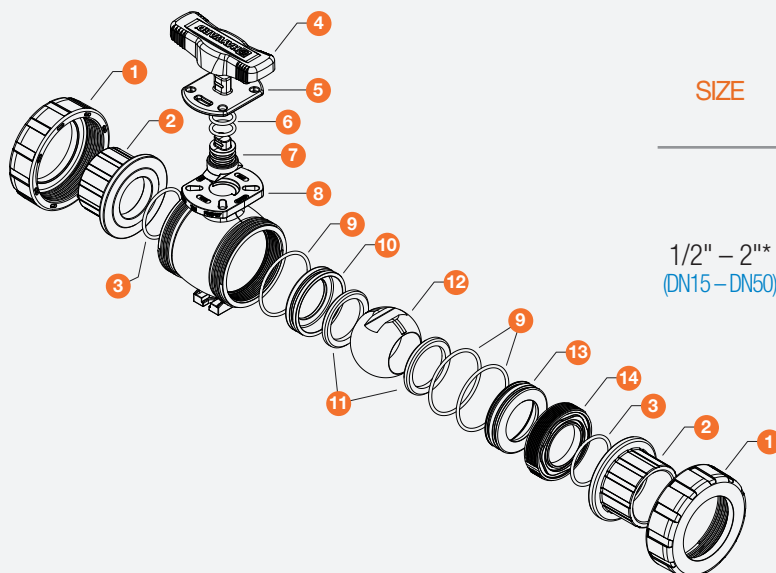
- Pneumatic or Electric Actuators
- Stem Extensions
- Manual Limit Switch
- Coupling for Actuator

### MATERIALS

- PVC per ASTM D1784 Cell Class 12454
- CPVC per ASTM D1784 Cell Class 23447
- GFPP per ASTM D4101 Cell Class 85580 (Handle & Lock Plate)

## TECHNICAL INFORMATION

### EXPLODED VIEW



### SELECTION CHART

SIZE	BODY MATERIAL	SEALS	END CONNECTION	PRESSURE RATING
1/2" – 2" (DN15 – DN50)	PVC or CPVC	FPM or EPDM	Socket or Threaded	250 PSI @ 70°F 16 Bar @ 21°C Non-Shock
			Flanged	150 PSI @ 70°F 10 Bar @ 21°C Non-Shock

\* Does not include sizes 1-1/4" and 1-1/2".

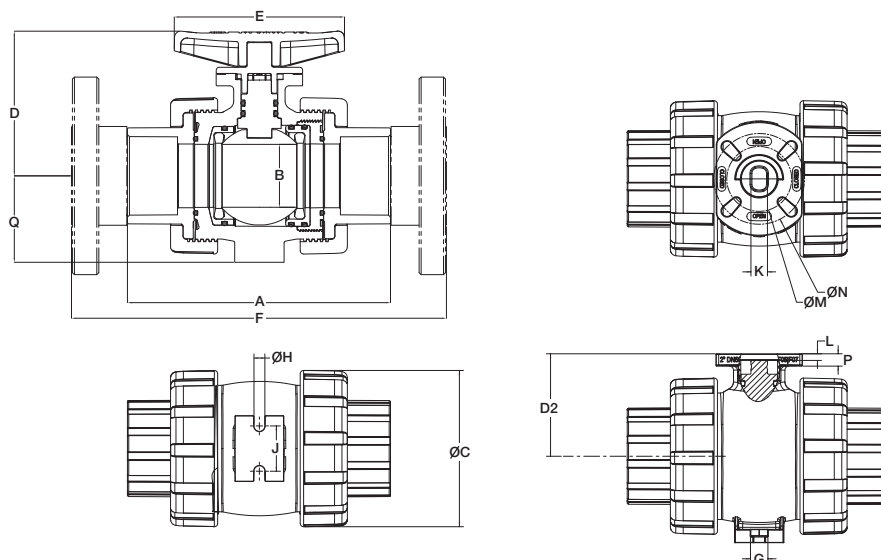
# CVH Series Profile2™ Proportional Control Ball Valves

1/2 TO 2" / DN15 TO DN50 PVC AND CPVC

## TECHNICAL INFORMATION, CONTINUED

### PARTS LIST / 2D DRAWINGS

1. Nut (2)
2. End Connector (2)
3. End Connector O-Ring (2)
4. Handle
5. Lock Plate
6. Stem O-Rings (2)
7. Stem
8. Body
9. Seat Carrier O-Ring (3)
10. Closed End Seat Carrier
11. Seats (2)
12. Ball (control)
13. Open End Seat Carrier
14. Seat Retainer

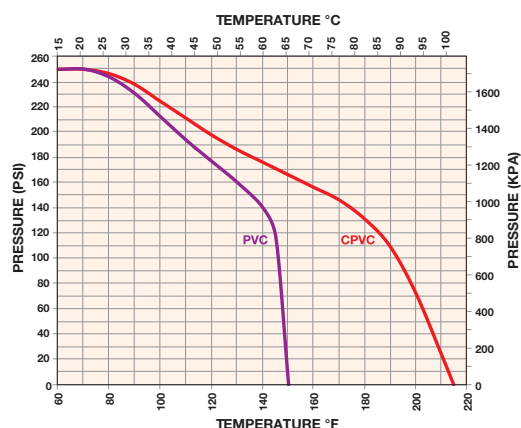


### DIMENSIONS – INCHES / MILLIMETERS

SIZE	A	B	C	D1	D2	E	F	G	H	J	K	L	M	N	P	Q
inches / DN	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm
1/2 / 15	4.65 / 118	0.53 / 13	2.25 / 57	2.82 / 72	1.75 / 44	3.50 / 89	6.65 / 169	0.45 / 11	0.27 / 7	0.75 / 19	0.50 / 13	0.17 / 4	1.97 / 50	N/A	0.29 / 7	1.37 / 35
3/4 / 20	4.79 / 122	0.72 / 18	2.62 / 67	2.98 / 76	1.91 / 49	3.50 / 89	7.17 / 182	0.45 / 11	0.27 / 7	0.75 / 19	0.50 / 13	0.17 / 4	1.97 / 50	N/A	0.29 / 7	1.56 / 40
1 / 25	5.34 / 136	0.94 / 24	3.00 / 76	3.25 / 83	2.18 / 55	4.00 / 102	8.05 / 204	0.45 / 11	0.27 / 7	1.00 / 25	0.50 / 13	0.20 / 5	1.97 / 50	N/A	0.29 / 7	1.75 / 44
2 / 50	7.99 / 203	1.91 / 49	4.75 / 121	4.40 / 112	3.11 / 79	5.17 / 131	11.51 / 292	0.53 / 13	0.33 / 8	1.38 / 35	0.50 / 13	0.20 / 5	1.97 / 50	2.76 / 70	0.34 / 9	2.63 / 67

\* Dimensions are subject to change without notice - consult factory for installation information.

### PRESSURE / TEMPERATURE CHART\*



\* Flanged valves rated to 150 PSI at 70°F non-shock

### PRESSURE LOSS CALCULATION FORMULA

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

$\Delta P$  = Pressure Drop  
 $Q$  = Flow in GPM  
 $C_v$  = Flow Coefficient



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### PROPORTIONAL VALVE FLOW COEFFICIENTS

1/2" PROFILE2 PROPORTIONAL CONTROL VALVE				3/4" PROFILE2 PROPORTIONAL CONTROL VALVE			
OPENING ANGLE	SLOW OPEN	FAST OPEN	FULL PORT VALVE	OPENING ANGLE	SLOW OPEN	FAST OPEN	FULL PORT VALVE
15°	.10	.10	.10	15°	.10	.10	.10
30°	.30	.50	.30	30°	.70	1.2	.70
45°	1.4	2.7	1.1	45°	2.8	5.3	2.5
60°	2.6	4.3	2.5	60°	5.3	8.5	5.3
75°	4.9	5.2	7.2	75°	9.4	10.1	14.4
90°	5.4	5.4	8.0	90°	10.4	10.4	16.0

1" PROFILE2 PROPORTIONAL CONTROL VALVE				2" PROFILE2 PROPORTIONAL CONTROL VALVE			
OPENING ANGLE	SLOW OPEN	FAST OPEN	FULL PORT VALVE	OPENING ANGLE	SLOW OPEN	FAST OPEN	FULL PORT VALVE
15°	.50	1.0	1.2	15°	1.0	2.5	10.0
30°	1.9	3.4	3.5	30°	4.0	11.0	16.0
45°	3.7	7.0	7.5	45°	11.0	25.0	35.0
60°	8.0	13.0	15.3	60°	21.0	44.0	72.0
75°	14.7	18.8	27.8	75°	37.0	54.0	117.0
90°	21.0	21.0	29.0	90°	56.0	56.0	150.0

### WEIGHT – LBS / KG

SIZE	Weight with Socket/Threaded Ends	Weight with Flanged Ends	Weight Bare Stem with Socket/Threaded Ends	Weight Bare Stem with Flanged Ends
inches / DN	lbs / kg	lbs / kg	lbs / kg	lbs / kg
1/2 / 15	0.70 / 0.32	1.12 / 0.51	0.59 / 0.27	1.01 / 0.46
3/4 / 20	0.90 / 0.41	1.50 / 0.68	0.79 / 0.36	1.39 / 0.63
1 / 25	1.18 / 0.54	1.98 / 0.90	1.05 / 0.48	1.85 / 0.84
2 / 50	3.87 / 1.76	6.37 / 2.89	3.62 / 1.64	6.12 / 2.78

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Canada: 1.888.238.7665 • Fax: 1.905.829.3636 • 2880 Plymouth Drive • Oakville, ON L6H 5R4 • Email: hflowcanada@hayward.com  
Visit us at: haywardflowcontrol.com

# INTERNATIONAL VALVE TECHNOLOGIES

## CAST STEEL GATE GLOBE & CHECK VALVES

Stocking Sizes 2" - 12"  
Larger Sizes available up to 48"  
ANSI Class 150 thru 2500



CV-4-150  
CV-4-300  
CV-4-600  
CV-4-900  
CV-4-1500  
CV-4-2500



GL-4-150  
GL-4-300  
GL-4-600  
GL-4-900  
GL-4-1500  
GL-4-2500



GV-4-150  
GV-4-300  
GV-4-600  
GV-4-900  
GV-4-1500  
GV-4-2500

## FORGED STEEL GATE GLOBE & CHECK VALVES

CVF-4-150  
CVF-4-300  
CVF-4-600  
CVF-4-900  
CVF-4-1500  
CVF-4-2500



GLF-4-150  
GLF-4-300  
GLF-4-600  
GLF-4-900  
GLF-4-1500  
GLF-4-2500



GVF-4-150  
GVF-4-300  
GVF-4-600  
GVF-4-900  
GVF-4-1500  
GVF-4-2500



Stocking Sizes 1/2" - 2" available ,consult factory for larger sizes.  
Special Alloys available - ASTM A105 SS CFM-316

## SPECIFICATIONS & STANDARDS

API 598

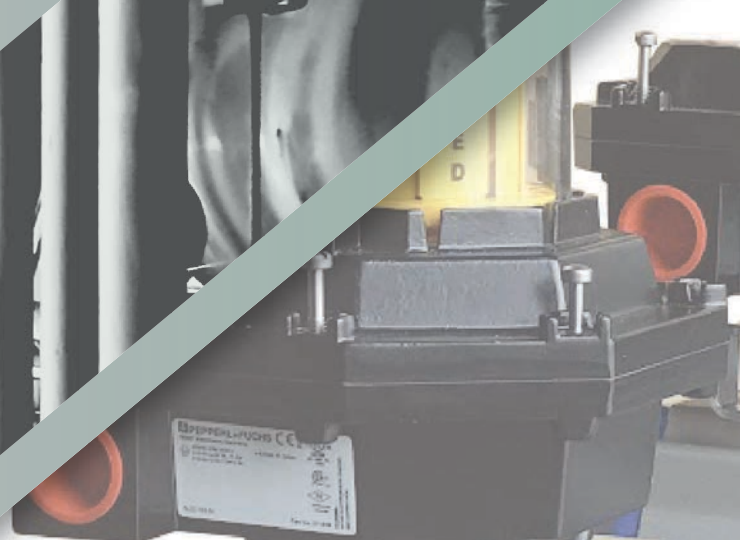
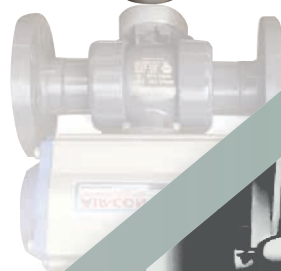
ASME B 16.34

ASME B 16.10

ASME B 16.5

ASME B 16.25

Classes 150/300



*Flo-Tite is a  
preferred vendor  
of choice.*