

TBH Series  
True Union Ball Valve  
Product Guide

FLOW CONTROL

define  
design

deliver



# TBH Series True Union Ball Valve

## OVERVIEW

A new generation of thermoplastic floating ball valves. The TBH 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.



TBH Series True Union Ball Valve

### 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 or Spring Return Handle

### 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)



TBH Series True Union Ball Valve Actuator Ready



Certified to NSF/ANSI 61 & 372



BACKED BY HAYWARD FLOW CONTROL'S EXCLUSIVE TWO YEAR WARRANTY



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## ACTUATION AND CONTROL OPTIONS



### HRS 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
- Manual Override



### 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



### 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



### 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



### 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
- 1/2" Conduit Port
- Terminal Blocks for Ease of Wiring
- NEMA 4/4X
- Patent No. 9,010,721 and 9,010,722
- Available with "Dead-Man" Spring Return Handle or Hand Lever (LHB-SR)

# TBH Series True Union Ball Valve

## FEATURES

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

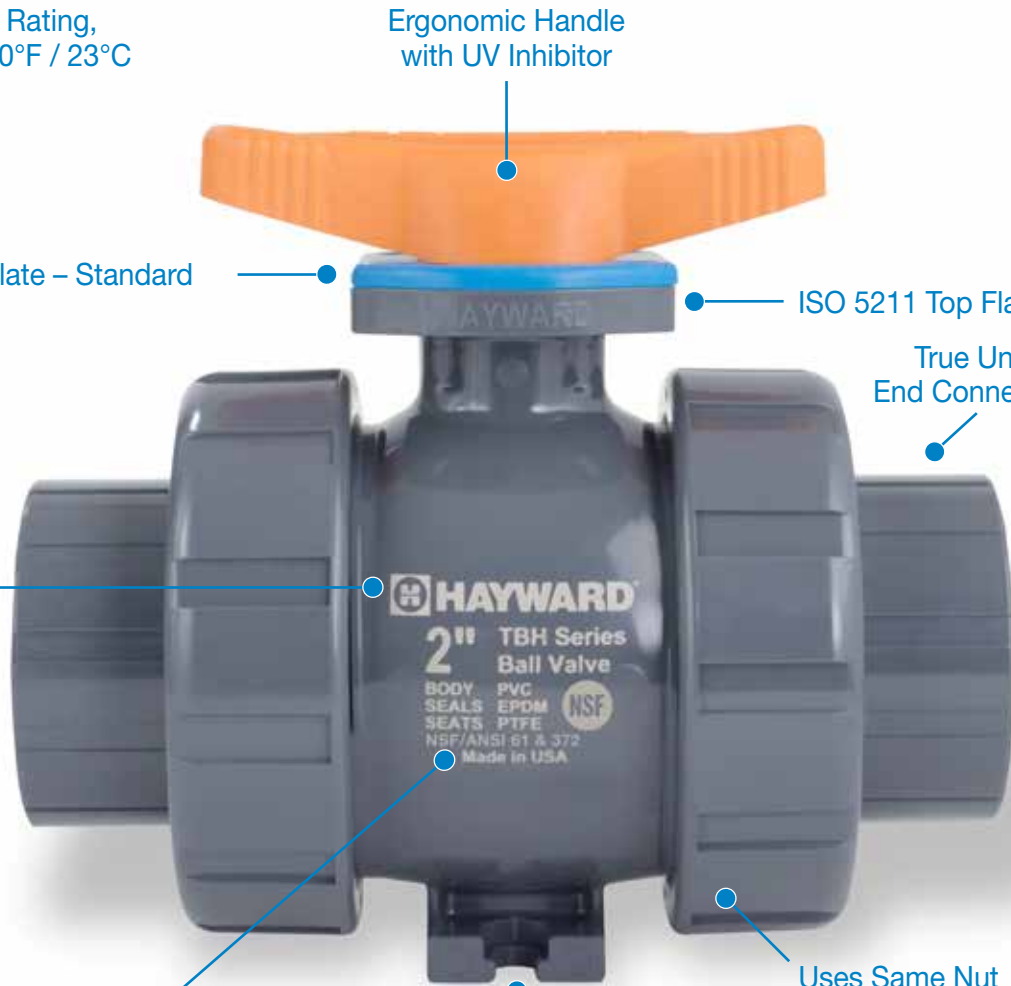
Ergonomic Handle  
with UV Inhibitor

Lock-Out Plate – Standard

ISO 5211 Top Flange

True Union  
End Connections

Permanent  
Marking



Uses Same Nut  
as Hayward TB Series  
Ball Valve



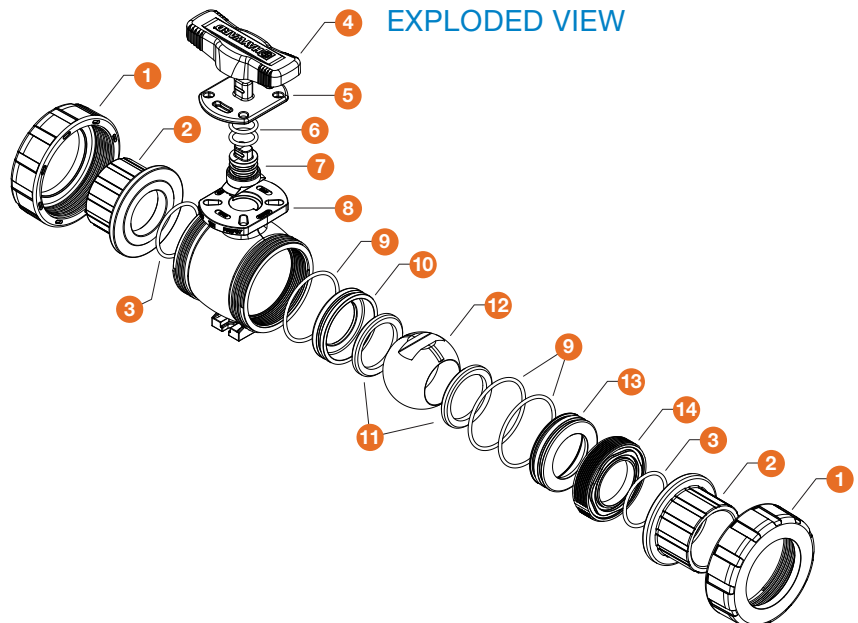
Made in USA!

Integral Foot Pad

## PARTS LIST

- |                             |                             |
|-----------------------------|-----------------------------|
| 1. Nut (2)                  | 8. Body                     |
| 2. End Connector (2)        | 9. Seat Carrier O-Ring (3)  |
| 3. End Connector O-Ring (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



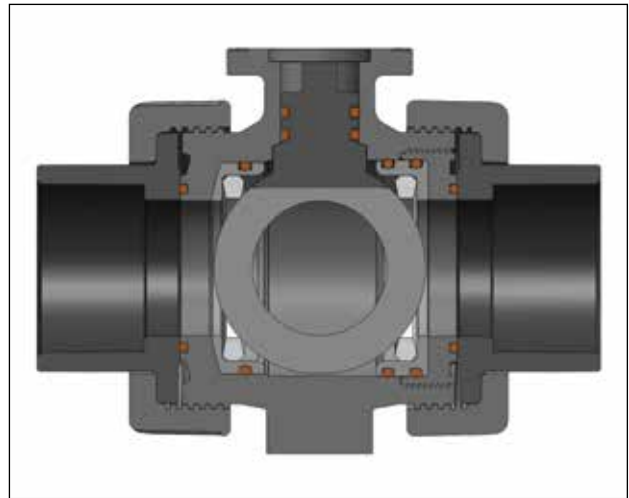


# TBH Series True Union Ball Valve

## 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



# TBH Series True Union Ball Valve

ONE VALVE PLATFORM

## TBH Series



## CVH Series



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

## TBH Series "Z-Ball"



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

Flow arrow indicates unidirectional seat design.

## Actuator Ready



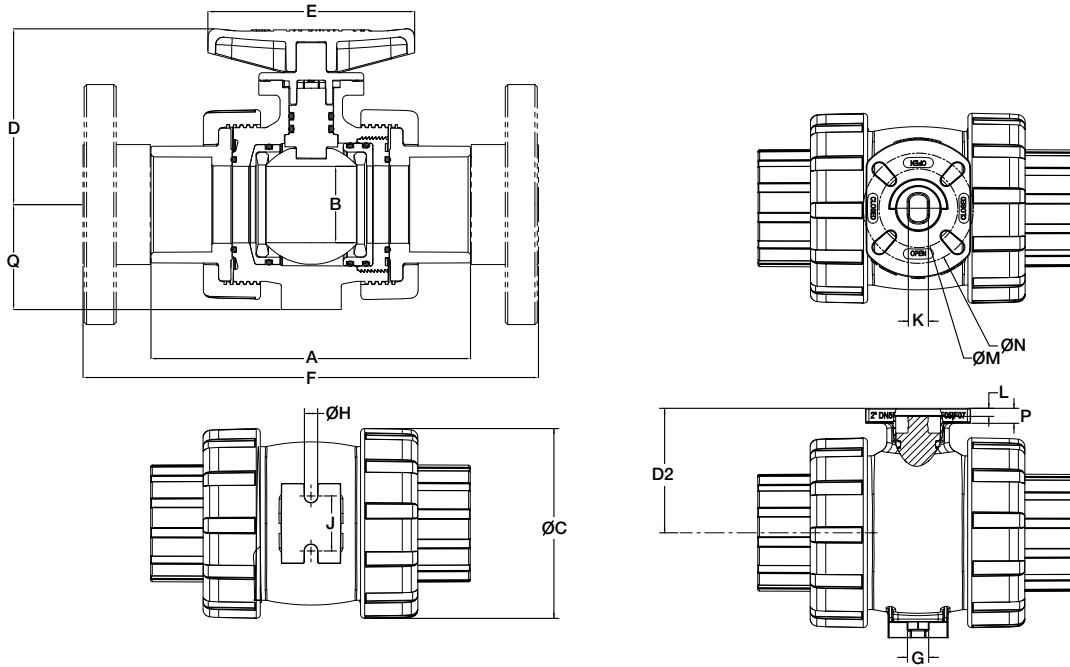
Optional adapter available.

Hayward Flow Control provides a range of mounting options to adapt to our actuators or to your preferred actuator. With the TBH Series ISO top integral flanges, all that is required is just the ISO 5211 coupling and bolting to adapt from the TBH Series stem to Hayward actuators or those actuators with ISO 5211 square drives.

# TBH Series True Union Ball Valve

## TECHNICAL INFORMATION

### 2D DRAWINGS



### 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
1/4 / 8	4.63 / 118	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	4.63 / 118	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	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
1-1/4 / 32	6.83 / 173	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	7.39 / 188	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	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

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

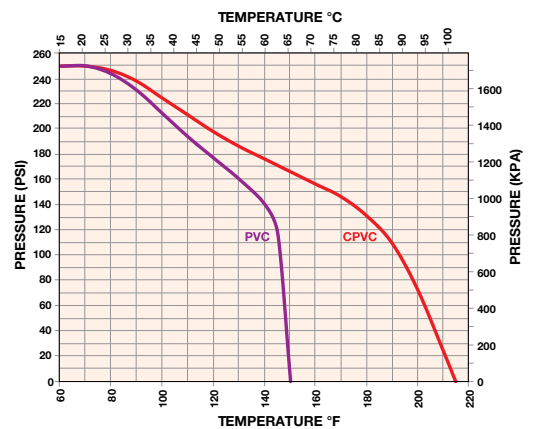
### WEIGHT – LBS / KG

SIZE	Weight with Socket/Threaded Ends		Weight with 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	Cv VALUES
in / DN	
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

# TBH Series True Union Ball Valve

## SPECIFICATIONS

### 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 of 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 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 two-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
TBH	1 PVC	025A 1/4"	ST SOCKET/THREADED	E EPDM	K ACTUATOR READY	O NONE	OO NONE
CVH	2 CPVC	037A 3/8"	OS SOCKET	V FPM	O 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					
						<b>CVH SERIES OPTIONS</b>	
						A SLOW OPEN	
						B FAST OPEN	
						C SLOW OPEN DRILLED**	
						D FAST OPEN DRILLED**	

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

\*\* Flow arrow indicates unidirectional seat design.



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