

define  
design

deliver

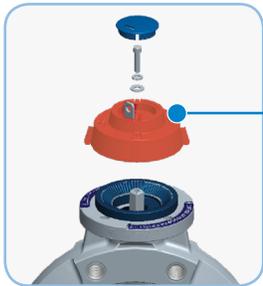
# BYV Series Butterfly Valve

## OVERVIEW

Engineered Hand Lever Design for Enhanced Strength and UV Performance



Ergonomic Grip and Lockouts



Option

Lock Out Cap provides an integrated and corrosion resistant lock out



72-Spline Interlocking Throttle Plate with 19 Locking Positions

1-pc Stem with Threaded Retaining Gland for Positive Stem Retention

High Visibility Disc Position and Flow Rate Indication

ISO 5211 Top Flange and Stem Drive for Ease of Actuation

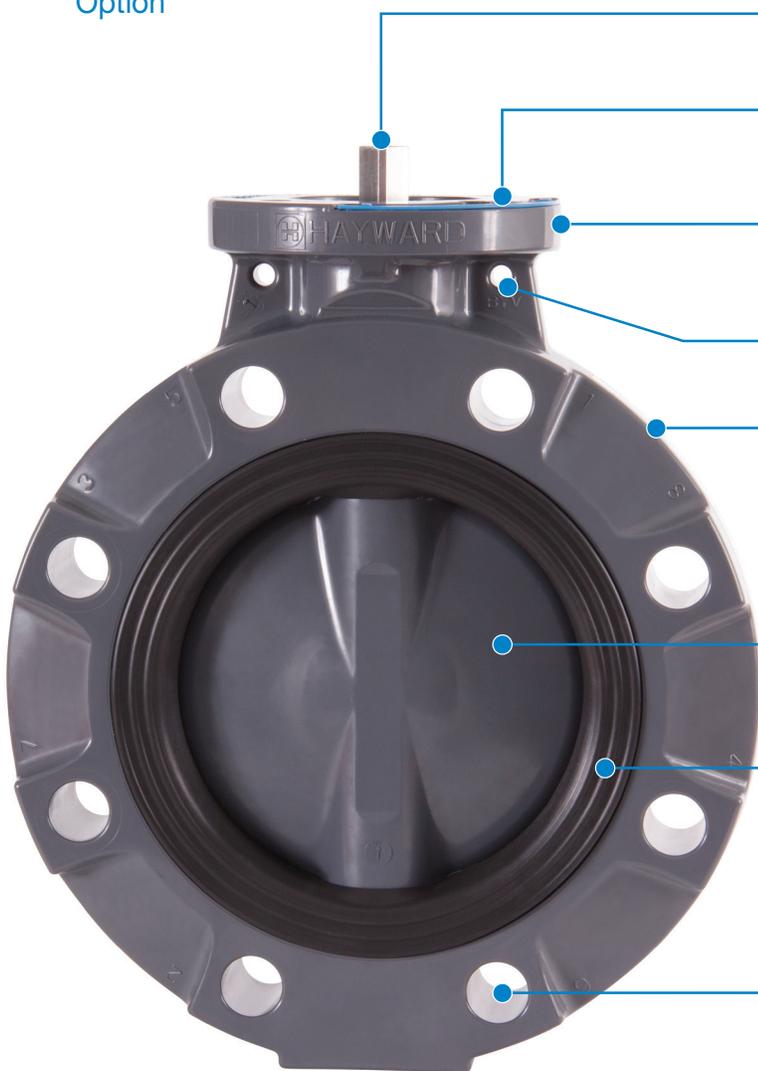
Molded-In Hang Tag Holes

Robust 1-Piece Valve Body Construction in PVC, CPVC or GFPP Materials

Hydro-dynamic Disc for Increased Flow Performance

Over-sized Liner Face Maximizes Flange Surface Contact

Reinforced Lug Holes Standard Overmolded 316 Stainless Steel Lugs Available



# BYV Series Butterfly Valve

PVC, CPVC AND GFPP



BYV Series in GFPP  
with Hand Lever

BYV Series in CPVC  
with Gear Operator



Certified to  
NSF/ANSI 61 & 372  
PVC/EPDM 2" - 12"  
CPVC/EPDM 4" - 12"

The Revolutionary and patent-pending BYV Series Butterfly Valve from Hayward features the most advanced thermoplastic design and construction in the industry today.

Available in multiple thermoplastic materials from 2" through 12", the BYV has an extremely robust body construction while lighter weight than a metal equivalent. The revolutionary hand lever design features a 72 spline interlock mechanism allowing for 19 stopping positions every 5 degrees. Additionally, the hand lever material incorporates a UV inhibitor for enhanced performance in outdoor applications. The BYV features reinforced lug holes and can be ordered with overmolded 316 stainless steel lugs for dead end service needs.

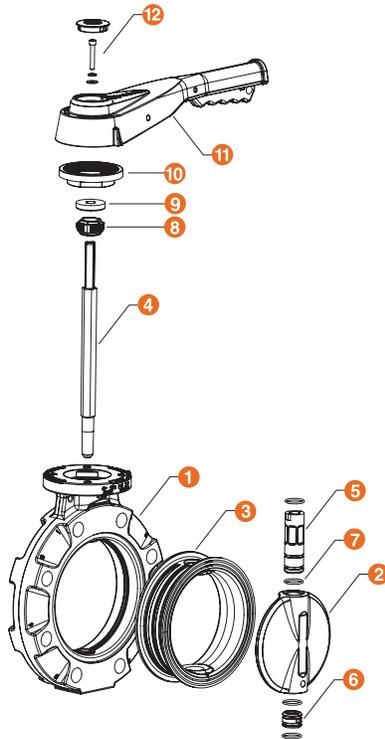
Designed for global use, the BYV is available in ANSI and DIN/EN flange patterns with a pressure rating of 150 PSI / 10 Bar across all sizes and materials. Finally, the BYV Series is Made by Hayward in the USA!

## KEY FEATURES, BENEFITS AND ADVANTAGES

- One Piece Body and Disc in PVC, CPVC and GFPP Materials
- Revolutionary Hand Lever with 19 Lockable Stop Positions and 360° Interlock
- External Disc Position and Flow Indication
- Hydro-dynamic Centric Disc Design for Increased Flow Performance
- Over-Sized Liner Face Maximizes Surface Contact with Flanges
- EPDM, Viton® or Nitrile Liners
- 1-Piece 316 Stainless Steel Stem with Threaded Retaining Gland
- Stem Bearing and Seal Retainer for Absolute Stem Positioning and Sealing
- ISO 5211 Top Flange and Stem Drive
- All Sizes Meet ANSI B16.10 / ISO 5752 Narrow Face-to-Face Dimensions
- Pressure Rated at 150 PSI / 10 Bar in All Sizes @ 70°F Non-Shock

## EXPLODED VIEW

- 1 Body
- 2 Disc
- 3 Liner
- 4 Stem
- 5 Upper Stem Bearings
- 6 Seal Retainer
- 7 O-Rings (4)
- 8 Threaded Retaining Gland
- 9 Weather Seal
- 10 Splined Throttle Plate (Ultem®)
- 11 Hand Lever Assembly
- 12 Bezel, Washers, Socket Head Cap Screw



## OPTIONS

- Over-Molded 316 Stainless Steel Lugs
- Lock Out Cap with or without Locking Tab for Padlock
- Gear Operators
- Complete Range of Pneumatic or Electric Actuators
- Stem Extensions
- 2" Square Operating Nut
- Chain Operator for Gear Box

## TYPICAL APPLICATIONS

- Water and Wastewater Treatment
- Aquatic and Animal Life Support Systems
- Chemical Processing and Handling
- Marine and Corrosive Environments
- Mining
- Metal Plating and Surface Finishing
- Landfills / Environmental Infrastructure
- Water / Theme Parks

## MATERIALS

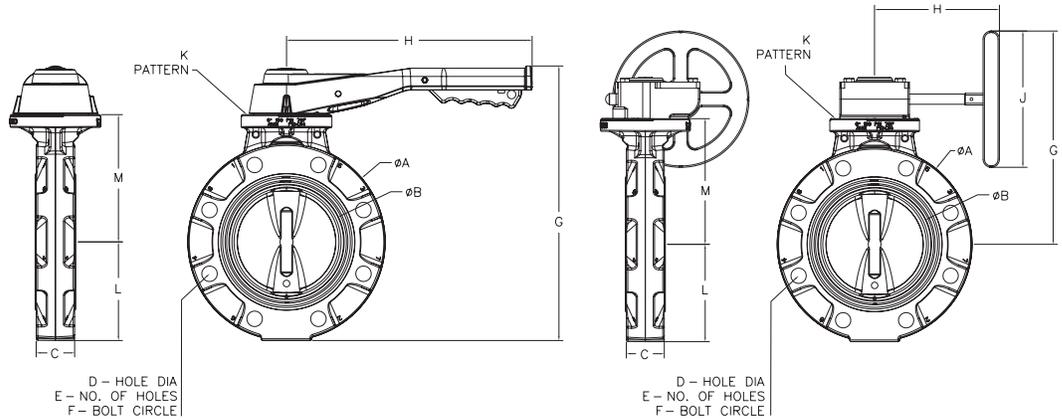
- PVC per ASTM D1784 Cell Class 12454
- CPVC per ASTM D1784 Cell Class 23447
- GFPP per ASTM D4101 Cell Class 85580
- EPDM, Viton® and Nitrile Liners

# BYV Series Butterfly Valve

## TECHNICAL INFORMATION

### PARTS LIST / 2D DRAWINGS

1. Body
2. Disc
3. Liner
4. Stem
5. Upper Stem Bearings
6. Seal Retainer
7. O-Rings (4)
8. Threaded Retaining Gland
9. Weather Seal
10. Splined Throttle Plate (Ultem®)
11. Hand Lever Assembly
12. Bezel, Washers, Socket Head Cap Screw



### DIMENSIONS – INCHES / MILLIMETERS

SIZE	A	B	C (1)	D ANSI (2)	D DIN (3)	E	F ANSI (2)	F DIN (3)	G		H		J	K (4)	L	M	WEIGHT w LEVER	WEIGHT w GEAR
inches / DN	in / mm	in / mm	in / mm	in / mm	in / mm	ANSI / DIN	in / mm	in / mm	in / mm		in / mm	in / mm	lbs / Kg	lbs / Kg				
2 / 50	6.12 / 155	2.09 / 53	1.69 / 43	0.75 / 19	0.71 / 18	4 / 4	4.75 / 121	4.92 / 125	9.41 / 239	7.53 / 191	10.5 / 267	4.75 / 121	5 / 125	F07-D11	3.17 / 81	3.97 / 101	4.0 / 1.8	5.8 / 2.6
2.5 / 65	7.25 / 184	2.57 / 65	1.81 / 46	0.75 / 19	0.71 / 18	4 / 4	5.50 / 140	5.71 / 145	10.3 / 262	7.96 / 202	10.5 / 267	4.75 / 121	5 / 125	F07-D11	3.63 / 92	4.40 / 112	4.9 / 2.2	6.7 / 3.0
3 / 80	7.75 / 197	3.36 / 85	1.81 / 46	0.75 / 19	0.71 / 18	4 / 8	6.00 / 152	6.30 / 160	10.9 / 277	8.31 / 211	10.5 / 267	4.75 / 121	5 / 125	F07-D11	3.88 / 99	4.75 / 121	5.2 / 2.4	7.0 / 3.2
4 / 100	9.13 / 232	4.25 / 108	2.06 / 52	0.75 / 19	0.71 / 18	8 / 8	7.50 / 191	7.09 / 180	12.54 / 319	9.29 / 236	12.00 / 305	7.28 / 185	5 / 125	F07-D14	4.57 / 116	5.69 / 145	7.7 / 3.5	11.1 / 5
6 / 150	11.25 / 286	6.09 / 155	2.19 / 56	0.88 / 22	0.87 / 22	8 / 8	9.50 / 241	9.45 / 240	15.66 / 398	12.36 / 314	14.00 / 356	7.75 / 197	8 / 200	F10-D14	5.63 / 143	7.25 / 184	12.7 / 5.8	16.2 / 7.4
8 / 200	13.75 / 349	7.84 / 200	2.38 / 60	0.88 / 22	0.87 / 22	8 / 8	11.75 / 298	11.61 / 295	18.03 / 458	13.48 / 342	16.00 / 406	7.75 / 197	8 / 200	F10-D17	6.88 / 175	8.38 / 213	18.5 / 8.4	21.9 / 10.0
10 / 250	16.13 / 410	9.79 / 249	2.69 / 68	1.00 / 25	0.87 / 22	12 / 12	14.25 / 362	13.78 / 350	NA	17.37 / 441	NA	9.50 / 241	8 / 200	F12-V28	8.06 / 205	10.88 / 276	N/A	34.2 / 15.5
12 / 300	19.13 / 486	11.51 / 292	3.06 / 78	1.00 / 25	0.87 / 22	12 / 12	17.00 / 432	15.75 / 400	NA	18.87 / 479	NA	9.50 / 241	8 / 200	F12-V36	9.56 / 243	12.38 / 314	N/A	50.4 / 22.9

(1) Dimension per ASME B16.10 Class 150, Steel, Narrow

(2) ANSI dimension per ASME B16.5, Class 150

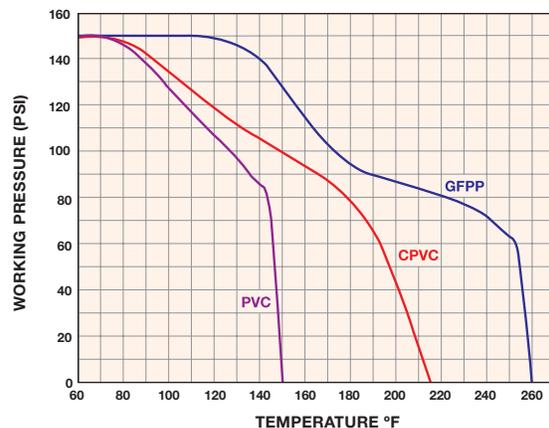
(3) Dimension per DIN 2501, PN10

(4) ISO 5211 Flange and Drive

### CV VALUES

SIZE in / DN	FULL OPEN POSITION	PRESSURE LOSS CALCULATION FORMULA
2 / 50	92	$\Delta P = \left[ \frac{Q}{Cv} \right]^2$ <p> <math>\Delta P</math> = Pressure Drop  <math>Q</math> = Flow in GPM  <math>Cv</math> = Flow Coefficient                 </p>
2-1/2 / 65	165	
3 / 80	250	
4 / 100	470	
6 / 150	1510	
8 / 200	2820	
10 / 250	4723	
12 / 300	6400	

### PRESSURE / TEMPERATURE CHART



Ultem® is a registered trademark of SABIC

# BYV Series Butterfly Valve

## KEY FEATURES AND ADVANTAGES

### Engineered Hand Lever for Enhanced Strength

- Ergonomic grip for ease of use
- Form fitting under grip for all hand sizes
- Lockout and tag-out holes molded into grip
- Made from GFPP with UV Inhibitor for superior outdoor performance
- Exceeds industry standards for strength requirements



### 19 Position Throttle Plate with 72 Interlocking Splines

- Made from Ultem® material for superior strength, temperature and corrosion resistance
- Provides locking positions every 5 degrees
- Ensures absolute control and positioning of disc
- Easy operation with a smooth drive



### High Visibility Disc and Flow Indicators

- Allows for exact positioning of the disc to meet flow requirements
- Shows degrees Open and Cv percentage
- High contrast permanent markings
- Made from PP material



### Overmolded Lug Option

- Threaded lugs made from 316 Stainless Steel
- Full width of the valve body for maximum engagement with bolt threads
- Allows for dead end service (Hayward recommends the use of a downstream flange)
- Does not require a different valve body or change of body materials to support threaded lugs



### Hydro-dynamic Disc Design

- Contoured shape for increased flow performance and high Cv
- Minimizes turbulence due to reduction of flow
- Allows for maximum flow through valve port
- Centric seat design for bubble tight seal
- One Piece Stem with upper bearing seal and lower seal carrier



# BYV Series Butterfly Valve Lock Out Caps

FOR BYV SERIES 2" – 8" / DN50 - DN200



## KEY FEATURES AND BENEFITS

- Designed to provide an integrated and corrosion resistant lock out for BYV Series Butterfly Valves
- Robust design allows for quick and easy field lock out and disc positioning of BYV Butterfly Valves
- Available with or without Stainless Steel locking tab for padlock
- Made with Glass Filled Polypropylene with UV Inhibitor
- Bright orange color for easy identification
- Allows for external position indication of disc



## EXPLODED VIEW

1 Cap Bezel

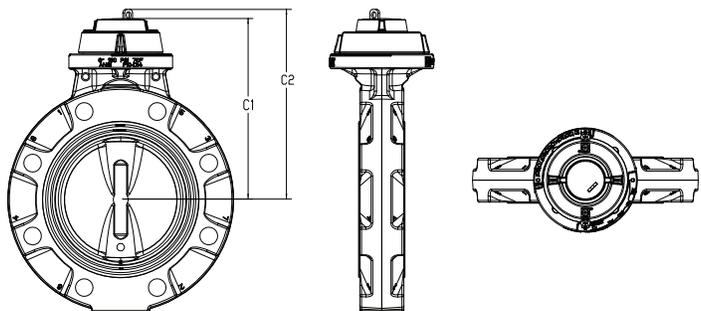
2 SHCS, Lock Washer, Washer

3 Cap with or without 316SS lock tab



## PART NUMBER / DIMENSIONS (INCHES / MILLIMETERS)

PART NUMBER Without Lockout / With Lockout	VALVE SIZE in / DN	C1		C2	
		in / mm	in / mm	in / mm	in / mm
BYVCAPK030 / BYVCAPK030L	2 / 50	5.50 / 140	6.00 / 152		
BYVCAPK030 / BYVCAPK030L	2-1/2 / 65	5.88 / 149	6.38 / 162		
BYVCAPK030 / BYVCAPK030L	3 / 80	6.25 / 159	6.75 / 171		
BYVCAPK040 / BYVCAPK040L	4 / 100	7.18 / 182	7.68 / 195		
BYVCAPK060 / BYVCAPK060L	6 / 150	9.00 / 229	9.50 / 241		
BYVCAPK080 / BYVCAPK080L	8 / 200	10.13 / 257	10.63 / 270		



# BYV Series Butterfly Valve

## ACTUATION AND CONTROLS

### ELECTRIC ACTUATORS

- Powder Coated Aluminum Alloy Housing
- NEMA 4/4X/IP67 Enclosure
- Raised Position Indicator
- ISO5211 Compliant Mounting
- Internal Low Power Heater
- Clutchless Manual Override
- Self-Locking Drive
- Permanently Lubricated
- Thermally Protected Motor
- 2 Auxiliary Switches
- Silicone Free



### PNEUMATIC ACTUATORS

- Corrosion-Resistant Housing
- Position Indicator
- Available in Double Acting and Spring Return Designs
- Permanent Lubrication
- Lightweight – Easy for Installation
- Namur-Style Solenoid Mounting
- ISO 5211 Mounting Base
- Stainless Steel Fasteners



### LHB SERIES MANUAL LIMIT SWITCH

- Ideal for Remote Monitoring of Critical Services
- Fits All Hayward® Ball Valves up to 6" and Butterfly Valves up to 8"
- Features Two Adjustable SPDT 10 Amp at 120 VAC Switches (Open/Close Position)
- Robust GFPP Body, Cover and Plate
- 304 Stainless Steel Stem and FPM Seals
- 1/2" Conduit Port
- Terminal Blocks for Ease of Wiring
- Meets ISO5211, F05, F07 and F10 Patterns
- NEMA 4X
- Switches CSA Listed
- Patent Pending Design



**HAYWARD®**  
**Quik-Ship**  
**Ready in 24HRS**

### Automation When You Need It...

Hayward Flow Control's industry leading actuation offering and service is now quicker than ever before, if that is possible to believe. By maximizing our LEAN production model and full scale US manufacturing base, Hayward can get your system up and running when it has to. Get any one of the selected automated butterfly valve packages shipped out to you within one business day of ordering. That simple. That easy.

## SAMPLE SPECIFICATION

All thermoplastic wafer-style butterfly valves shall be manufactured from PVC Type 1, Grade 1 (ASTM D1784, Cell Classification 12454), CPVC (ASTM D1784, Cell Classification 23447) or glass filled Polypropylene (ASTM D4101, Cell Classification 85580). All valve bodies shall contain integral top mounting flange with dimensions and bolt circles conforming to ISO 5211. Bodies shall contain fully-supported flange bolt holes, be one piece construction and meet ANSI B16.10 narrow face-to-face dimensions in all sizes. If LUGGED butterfly valves are required, lugs shall be over-molded, 316 stainless steel and be the full width of the body. Liners shall be EPDM, Viton® or Nitrile. Liner shall be FULL BOOT design, and shall be retained in the body via rib and groove engagement. Liner shall serve as primary disc seal and face seals for mating flanges. Secondary upper bearing and lower seal retainer o-ring seals to be EPDM or FPM. Stem shall be 316 stainless steel, non-wetted and provide full engagement over length of disc. Stem shall have position retention design.

Lever handle shall be trigger-style with 360° interlocking splines allowing the handle to position the disc in 5° increments. Mounting of stop plate for lever handle shall be non-invasive to the valve body and shall not incorporate self tapping screws or other fasteners that connect directly to the valve body. Trigger shall contain hole for padlock, as well as slot for cable tie, to lockout valve. Lever handle material to be 30% glass filled Polypropylene with UV Inhibitor.

Sizes 2" through 8" will be lever-operated as standard, and sizes 10" and 12" will be gear-operated as standard. Gear operators will be available for all sizes of valves as needed. All sizes of butterfly valves (2" through 12") shall be pressure-rated for 150 PSI at 70°F non-shock.

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

## PART NUMBER MATRIX

A		B		C		M		E		F		G		H		I	
BYV		1		1		040A		0		E		L		I		00	
VALVE SERIES	SUFFIX A	BODY MATERIAL	SUFFIX B	DISC MATERIAL	SUFFIX C	SIZE	SUFFIX M	STEM MATERIAL	SUFFIX E	LINER MATERIAL	SUFFIX F	METHOD OF OPERATION	SUFFIX G	LUG OPTION	SUFFIX H	OPTIONS	SUFFIX I
BYV Butterfly	BYV	PVC	1	PVC	1	2"	020A	316	0	Viton®	V	Lever	L	none	0	none	00
		CPVC	2	CPVC	2	2-1/2"	025A	Ti	8	EPDM	E	Gear	G	316SS	I	PER PO	##
		GFPP	4	GFPP	4	3"	030A			Nitrile	N	Bare Stem	K				
						4"	040A										
						6"	060A										
						8"	080A										
						10"	100A										
						12"	120A										
						DN50	050M										
						DN65	065M										
						DN80	080M										
						DN100	100M										
						DN150	150M										
						DN200	200M										
						DN250	250M										
						DN300	300M										

Inch Size valves have an ANSI flange pattern

Metric Size valves have a DIN flange pattern

Please see table of dimensions for further data.



Hayward is a registered trademark of Hayward Industries, Inc.  
© 2019 Hayward Industries, Inc.

BYV0219

Contact Hayward Flow Control with questions:

USA: 1.888.429.4635 • Fax: 1.888.778.8410 • One Hayward Industrial Drive • Clemmons, NC 27012 USA • Email: hfcsales@hayward.com  
Canada: 1.888.238.7665 • Fax: 1.905.829.3636 • 2880 Plymouth Drive • Oakville, ON L6H 5R4 Canada • Email: hflowcanada@hayward.com  
Visit us at: www.haywardflowcontrol.com