

BYV Series
Butterfly Valve
Product Guide

FLOW CONTROL

define
design

deliver

WORKING PRESSURE (PSI)

TEMPERATURE

PVC

BYV Series Butterfly Valve

PVC, CPVC AND GFPP

NEW



BYV Series
with Hand Lever

BYV Series
with Gear Operator

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

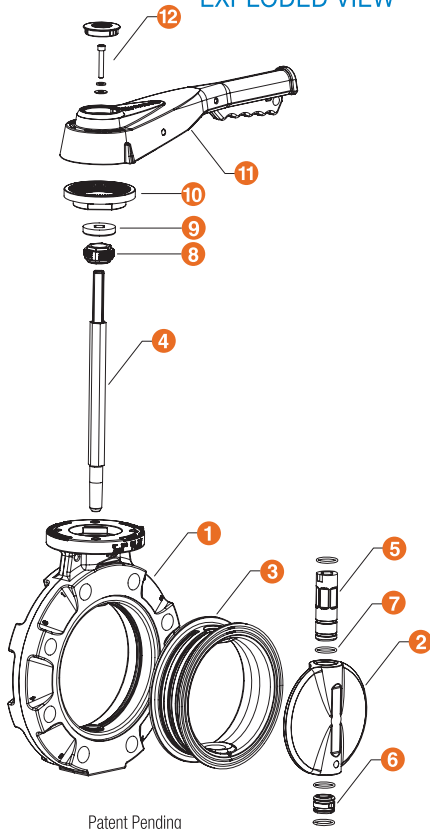
Available in multiple thermoplastic materials from 2" through 12", the BYV has an extremely robust body construction while lighter weight than a metal equivalent. The revolutionary hand lever design features a 72 spline interlock mechanism allowing for 19 stopping positions every 5 degrees. Additionally, 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



Patent Pending

OPTIONS

- Over-Molded or Field Mountable 316 Stainless Steel Lugs
- 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

Engineered Hand Lever Design for Enhanced Strength and UV Performance



Ergonomic Grip and Lockouts



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

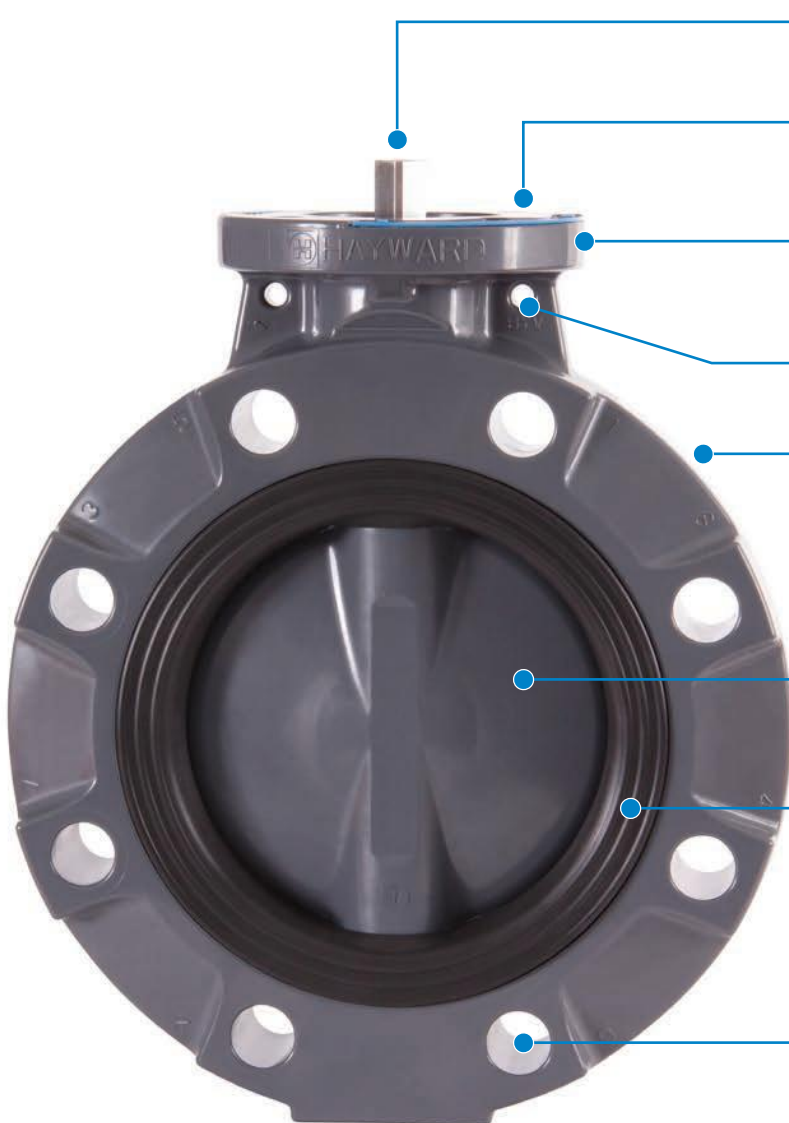
Molded-In Hang Tag Holes

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 or Field Mounted 316 Stainless Steel Lugs Available



BYV Series 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
- Insures 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 or Field Mountable 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

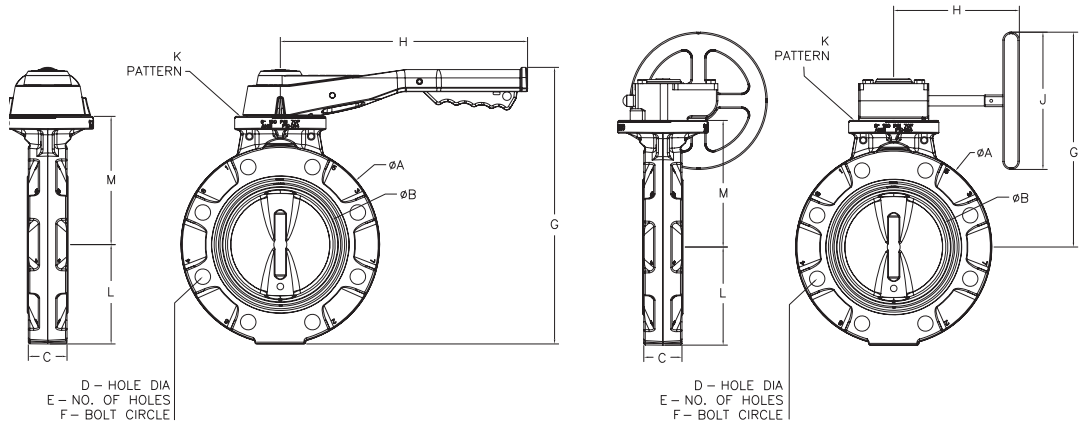


BYV Series Butterfly Valve

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 ₁ ANSI (2)	D ₂ DIN (3)	E	F ₁ ANSI (2)	F ₂ 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	in / mm	in / mm		in / mm	in / mm	lbs / Kg	lbs / Kg
2 / 50	6.12 / 155	2.03 / 52	1.69 / 43	0.75 / 19	0.71 / 18	4 / 4	4.75 / 121	4.92 / 125	7.53 / 191	6.25 / 159	4.75 / 121	10.5 / 267	5 / 125	F07-D11	3.17 / 81	3.97 / 101	4.0 / 1.8	5.8 / 2.6
2.5 / 65	7.25 / 184	2.50 / 64	1.81 / 46	0.75 / 19	0.71 / 18	4 / 4	5.50 / 140	5.71 / 145	7.96 / 202	6.67 / 169	4.75 / 121	10.5 / 267	5 / 125	F07-D11	3.63 / 92	4.40 / 112	4.9 / 2.2	6.7 / 3.0
3 / 80	7.75 / 197	3.25 / 83	1.81 / 46	0.75 / 19	0.71 / 18	4 / 8	6.00 / 152	6.30 / 160	8.31 / 211	7.00 / 178	4.75 / 121	10.5 / 267	5 / 125	F07-D11	3.88 / 99	4.75 / 121	5.2 / 2.4	7.0 / 3.2
4 / 100	9.13 / 232	4.12 / 105	2.06 / 52	0.75 / 19	0.71 / 18	8 / 8	7.50 / 191	7.09 / 180	9.29 / 236	8.00 / 203	7.28 / 185	12.00 / 305	5 / 125	F07-D14	4.57 / 116	5.69 / 145	7.7 / 3.5	11.1 / 5
6 / 150	11.25 / 286	5.98 / 152	2.19 / 56	0.88 / 22	0.87 / 22	8 / 8	9.50 / 241	9.45 / 240	12.35 / 314	10.00 / 254	7.75 / 197	14.00 / 356	8 / 200	F10-D14	5.63 / 143	7.25 / 184	12.7 / 5.8	16.2 / 7.4
8 / 200	13.75 / 349	7.75 / 197	2.38 / 60	0.88 / 22	0.87 / 22	8 / 8	11.75 / 298	11.61 / 295	13.48 / 342	11.18 / 284	7.75 / 197	16.00 / 406	8 / 200	F10-D17	6.88 / 175	8.38 / 213	18.5 / 8.4	21.9 / 10.0
10 / 250	16.13 / 410	9.63 / 245	2.69 / 68	1.00 / 25	0.87 / 22	12 / 12	14.25 / 362	13.78 / 350	16.37 / 416	N/A	9.00 / 229	N/A	8 / 200	F12-V28	8.06 / 205	10.88 / 276	N/A	34.2 / 15.5
12 / 300	19.13 / 486	11.37 / 289	3.06 / 78	1.00 / 25	0.87 / 22	12 / 12	17.00 / 432	15.75 / 400	17.87 / 454	N/A	9.00 / 229	N/A	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
2 / 50	125
2-1/2 / 65	190
3 / 80	280
4 / 100	600
6 / 150	1300
8 / 200	2500
10 / 250	4700
12 / 300	7100

PRESSURE LOSS CALCULATION FORMULA

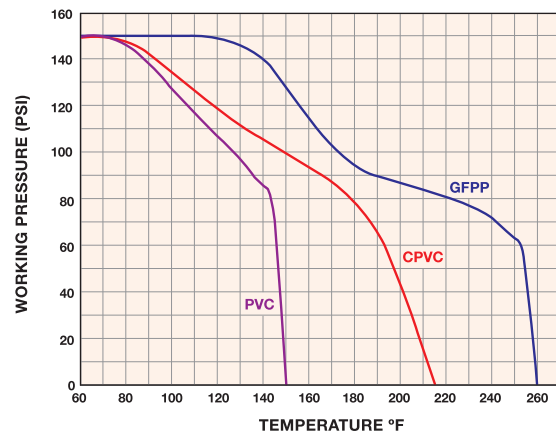
$$\Delta P = \left[\frac{Q}{C_v} \right]^2$$

ΔP = Pressure Drop

Q = Flow in GPM

Cv = Flow Coefficient

PRESSURE / TEMPERATURE CHART



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 two-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			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												

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Inch Size valves have an ANSI flange pattern
 Metric Size valves have a DIN flange pattern
 Please see table of dimensions for further data.