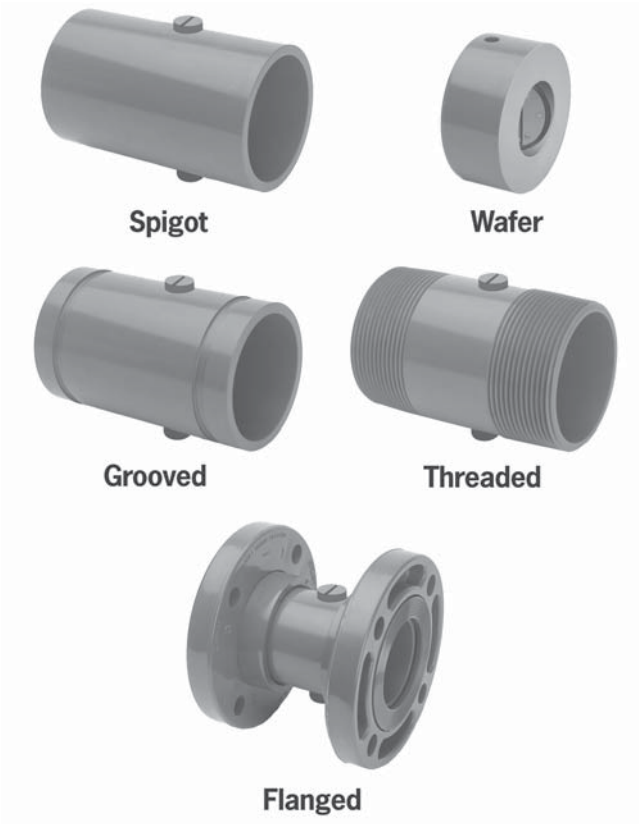
BUTTERFLY CHECK VALVES



Sample Engineering Specification

All thermoplastic Check Valves shall be Butterfly design constructed from PVC Type I, ASTM D 1784 Cell Classification 12454 or CPVC Type IV, ASTM D1784 Cell classification 23447. Valves shall be Flanged, Spigot, Male Threaded, Grooved end or Wafer style. All valve seals shall be reinforced EPDM or Viton® and replaceable internal components. All 2" - 8" valves shall be pressure rated at 150 psi, all 10" - 16" valves at 100 psi for water at 73°F, all 18" - 24" valves at 50 psi for water at 73°F as manufactured by Spears® Manufacturing Company.

Features – PVC, CPVC

This multi-purpose check valve provides an extremely low profile and very quick response to back flow without slamming. Since most all components are internal, Spears® Butterfly Check Valves require no more space than a piece of pipe and fitting. Special design incorporates flexible reinforced elastomer seal for long life and is suitable for mounting in any position for greater versatility. Available in IPS sizes 2" - 12" with Flanged, Spigot, Male Threaded, Grooved Pipe style & Wafer end connections, and 14" - 24" Flanged, Spigot, Grooved & Wafer end connections. Can be custom produced to virtually any standard pipe diameter.

- Chemical Resistant PVC & CPVC Construction
- No Metal Components
- Quick Response Shut-off In Any Position
- Replaceable Internal Components - Choice of Reinforced EPDM or Viton®
- Suitable for Horizontal or Vertical Installation
- Sizes 2" - 8" Pressure Rated to 150 psi for water at 73°F

  Sizes 10" - 16" Pressure Rated to 100 psi for water at 73°F
- Sizes 18" - 24" Pressure Rated to 50 psi for water at 73°F
- Assembled with Silicone-Free, Water Soluble Lubricants

BUTTERFLY CHECK VALVES

Quick-View Butterfly Check Valve Selection Chart

Valve Size	O-ring Material	PVC Material[1]					Pressure Rating
		Flanged	Spigot	Threaded	Grooved	Wafer	
2	EPDM	5423-020	5427-020	5421A-020	542G-020	5420-020	150 psi Non-Shock Water @73°F
	Viton®	5433-020	5437-020	5431A-020	543G-020	5430-020	
2-1/2	EPDM	5423-025	5427-025	5421A-025	542G-025	5420-025	
	Viton®	5433-025	5437-025	5431A-025	543G-025	5430-025	
3	EPDM	5423-030	5427-030	5421A-030	542G-030	5420-030	
	Viton®	5433-030	5437-030	5431A-030	543G-030	5430-030	
4	EPDM	5423-040	5427-040	5421A-040	542G-040	5420-040	
	Viton®	5433-040	5437-040	5431A-040	543G-040	5430-040	
6	EPDM	5423-060	5427-060	5421A-060	542G-060	5420-060	
	Viton®	5433-060	5437-060	5431A-060	543G-060	5430-060	
8	EPDM	5423-080	5427-080	5421A-080	542G-080	5420-080	
	Viton®	5433-080	5437-080	5431A-080	543G-080	5430-080	
10	EPDM	5423-100	5427-100	5421A-100	542G-100	5420-100	100 psi Non-Shock Water @73°F
	Viton®	5433-100	5437100	5431A-100	543G-100	5430-100	
12	EPDM	5423-120	5427-120	5421A-120	542G-120	5420-120	
	Viton®	5433-120	5437-120	5431A-120	543G-120	5430-120	
14	EPDM	5423-140	5427-140	N/A	542G-140	5420-140	
	Viton®	5433-140	5437-140	N/A	543G-140	5430-140	
16	EPDM	5423-160	5427-160	N/A	542G-160	5420-160	
	Viton®	5433-160	5437-160	N/A	543G-160	5430-160	
18	EPDM	5423-180	5427-180	N/A	542G-180	5420-180	50 psi Non-Shock Water @73°F
	Viton®	5433-180	5437-180	N/A	543G-180	5430-180	
20	EPDM	5423-200	5427-200	N/A	542G-200	5420-200	
	Viton®	5433-200	5437-200	N/A	543G-200	5430-200	
24	EPDM	5423-240	5427-240	N/A	542G-240	5420-240	
	Viton®	5433-240	5437-240	N/A	543G-240	5430-240	

1: For CPVC valves add the letter "C" following the size code of the part number listed (e.g., 5423-020**C**)

C_V Values

Size	Cv[1]
2	91
2-1/2	123
3	365
4	665
6	1695
8	2990
10	5595
12	8490
14	10,000
16	13,000
18	15,000
20	18,000
24	29,000

1: Gallons per minute at 1 psi pressure drop.

Temperature Pressure Rating

System Operating Temperature °F (°C)			100 (38)	110 (43)	120 (49)	130 (54)	140 (60)	150 (66)	160 (71)	170 (77)	180 (82)	190 (88)	200 (93)	210 (99)
Valve Pressure Rating psi (MPa)	2"- 8"	PVC	150 (1.03)	135 (.93)	110 (.76)	75 (.52)	50 (.34)	-0-	-0-	-0-	-0-	-0-	-0-	-0-
		CPVC	150 (1.03)	140 (.97)	130 (.90)	120 (.83)	110 (.76)	100 (.70)	90 (.62)	80 (.55)	70 (.48)	60 (.41)	50 (.34)	-0-
	10" - 16"	PVC	100 (.70)	90 (.62)	80 (.55)	65 (.38)	50 (.34)	-0-	-0-	-0-	-0-	-0-	-0-	-0-
		CPVC	100 (.70)	95 (.66)	90 (.62)	85 (.59)	80 (.55)	75 (.52)	70 (.48)	65 (.45)	60 (.41)	55 (.38)	50 (.34)	-0-
	18" - 24"	PVC	50 (.34)	45 (.31)	40 (.30)	35 (.24)	30 (.21)	-0-	-0-	-0-	-0-	-0-	-0-	-0-
		CPVC	50 (.34)	47 (.32)	45 (.31)	42 (.83)	40 (.30)	37 (.26)	35 (.24)	30 (.21)	25 (.17)	20 (.14)	15 (.10)	-0-

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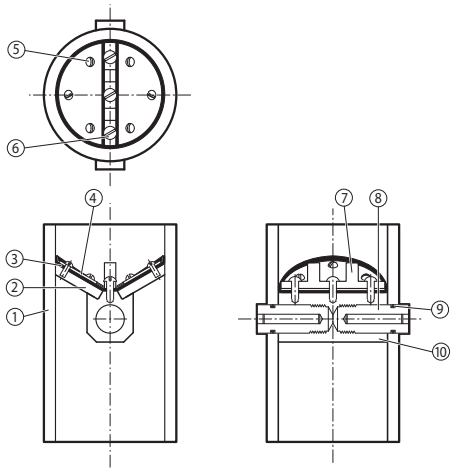
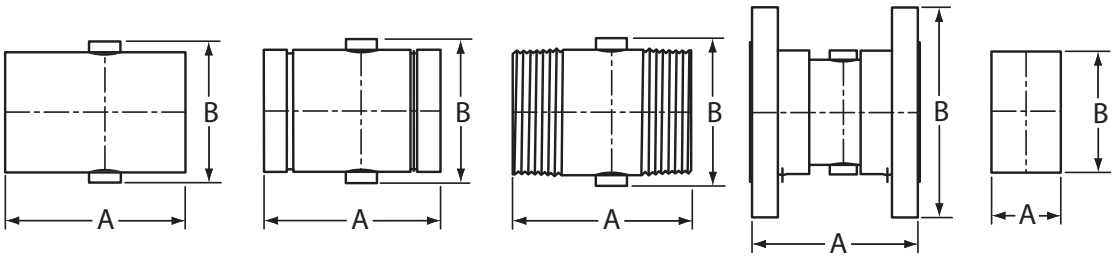


Replacement Parts

No.	Component	Qty.	Material
1	Body	1	PVC/CPVC
2	Flapper	2	PVC/CPVC
3	Flex Seal Gasket	1	EPDM/Viton®
4	Flapper Cover	2	PVC/CPVC
5	Flapper Screws	6	PVC/CPVC
6	Hinge Post Screws	3	PVC/CPVC
7	Post Strip	1	PVC/CPVC
8	Post Bolt	3	PVC/CPVC
9	O-ring	2	EPDM/Viton®
10	Hinge Post	1	PVC/CPVC



Dimensions

Size	Spigot (Plain End) Valve, Grooved End Valve & Threaded Valve		Flanged		Wafer		Pressure Rating (psi)
	A	B	A	B	A	B	
2	5-3/4	2-9/16	6-9/16	6	1-3/4	4	150
2-1/2	5-3/4	3-3/32	6-23/32	7	2-3/8	4-3/4	150
3	5-3/4	4-1/32	6-13/16	7-1/2	2-3/4	5-1/4	150
4	6-3/4	4-13/16	7-7/8	9	3-5/8	6-5/8	150
6	10-1/2	7-9/32	11-25/32	11	4-1/4	8-5/8	150
8	14	10-7/32	15-3/8	13-1/2	6	11	150
10	16	11-31/32	17-5/8	16	10	13-1/4	100
12	16	14-1/32	17-1/2	19	12	16	100
14	19	14-3/4	19	21	13	17-5/8	100
16	19-3/4	16-17/32	22-1/8	23-1/2	13-1/2	20-1/8	100
18	26-1/2	19-31/32	28-7/8	25	15-1/2	21-1/2	50
20	28-7/8	21-25/32	38-3/8	27-1/2	17	23-3/4	50
24	29-7/8	25-21/32	44-7/8	32	19	28-1/8	50

As a general guideline, Opening & Closing Pressures will range from .2 to .5 psi for horizontal applications. Opening pressure tends to decrease in larger size valves. Valves installed in vertical up-flow applications will require slightly higher pressures.

General Installation Information

Butterfly Check Valve seating may be affected by normal system turbulence. Valves should be installed at least 5 pipe diameters away from any fitting. If used as a foot valve, do not place near bottom of a tank. Butterfly type check valves should not be used in continuous cycling applications, such as with reciprocating pumps. This can result in premature failure of sealing membrane. In horizontal installations, always orient the Hinge Post Bolts visible on the external body in a vertical (top and bottom) position, perpendicular to flow. In vertical installations downstream from an elbow, flow velocities can be higher on the outer radius of the elbow. To avoid uneven butterfly plate loading, the Hinge Post Bolts should align with crotch and outer radius of elbow and NOT from side to side of the elbow.

Notes: Flanged valves are designed for mounting between two (2) ANSI Class 125/150 bolt pattern flanges using user supplied 1/8" full-faced gaskets, bolts, nuts and flat washers. Male thread ends are standard NPT tapered. Grooved ends are for use with mechanical coupler designed for thermoplastic pipe.