

CR-TEC Engineering

Automated Valve Solutions

CRVP107FE Series Butterfly Valves



< STANDARDS >



ASTM D1784



ANSI B16.5

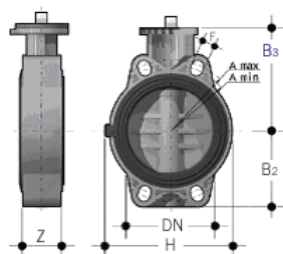
CR-TEC CRVP107FE Series Butterfly Valves incorporates the all PVC construction and EPDM liner to make this valve the perfect choice for water and light industrial applications. The special trapezoid shape of the liner and serrated body cavity guarantee a bubble tight seal while keeping break-away torque at an absolute minimum. This versatile valve features double self-lubricating seals, direct actuator mount capability, and the option of either a lever handle or mounted gear box.

VALVE AVAILABILITY

Body Material:	PVC
Disc Material:	PVC
Size Range:	1-1/2" through 12"
Pressure:	232 psi (1-1/2" to 2"), 150 psi (2-1/2" to 8") 75 psi (10" to 12")
Seats:	EPDM
Seals:	EPDM
Body Style:	Wafer
Control Style:	Lever Handle or Mounted Gear Box
End Connections:	Flanged (ANSI 150)

Product Data Sheet

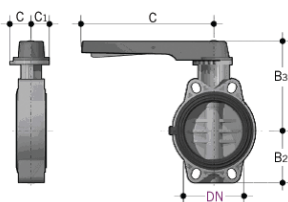
Dimensions



Dimension (inches)

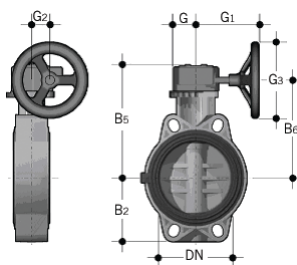
Size	DN	Z	B ₂	B ₃	H	A _{min}	A _{max}	f	# holes	Pattern
1-1/2	1.57	1.30	2.36	4.17	5.20	3.68	4.29	0.75	4	square
2	1.97	1.69	2.76	4.45	5.79	4.25	4.88	0.75	4	square
2-1/2	2.56	1.81	3.15	4.84	6.50	5.04	5.67	0.75	4	square
3	3.15	1.93	3.54	5.59	5.12	5.71	6.26	0.75	4	rectangular
4	3.94	2.20	4.13	5.98	5.91	6.50	7.48	0.75	4	rectangular
5	4.92	2.52	4.76	6.93	7.28	8.03	8.46	0.91	4	rectangular
6	5.91	2.76	5.20	7.44	8.27	9.06	9.53	0.91	4	rectangular
8	7.87	2.80	6.34	8.46	12.80	11.02	11.73	0.91	8	square
10	9.84	4.49	8.27	9.76	15.94	14.25	14.25	1.00	12	square
12	11.81	4.49	9.65	12.01	18.70	17.00	17.00	1.00	12	square

Lever Handle – Dimension (inches)



Size	DN	C ₁	C ₂	C	B ₂	B ₃	# holes	Pattern
1-1/2	1.57	1.77	1.65	6.89	2.36	5.35	4	square
2	1.97	1.77	1.65	6.89	2.76	5.63	4	square
2-1/2	2.56	1.77	2.09	9.84	3.15	6.61	4	square
3	3.15	1.77	2.09	9.84	3.54	7.17	4	rectangular
4	3.94	1.77	2.09	9.84	4.13	7.72	4	rectangular
5	4.92	1.77	2.09	13.19	4.76	8.46	4	rectangular
6	5.91	1.77	2.09	13.19	5.20	9.02	4	rectangular
8	7.87	2.56	3.23	16.73	6.34	12.17	8	square

Mounted Gear Box – Dimension (inches)

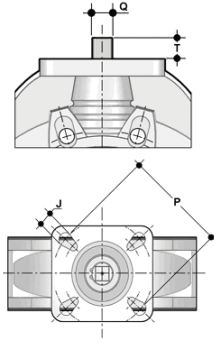
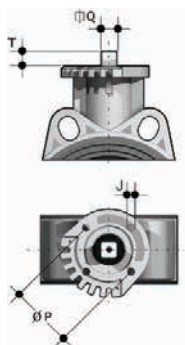


Size	DN	G ₂	G	G ₁	G ₃	B ₂	B ₅	B ₆	# holes	Pattern
2-1/2	2.56	1.54	1.89	5.31	4.92	3.15	6.81	5.71	4	square
3	3.15	1.54	1.89	5.31	4.92	3.54	7.36	6.26	4	rectangular
4	3.94	1.54	1.89	5.31	4.92	4.13	7.91	6.81	4	rectangular
5	4.92	1.54	1.89	5.67	7.87	4.76	8.66	7.56	4	rectangular
6	5.91	1.54	1.89	5.67	7.87	5.20	9.25	8.15	4	rectangular
8	7.87	2.36	2.56	6.89	7.87	6.34	11.34	10.12	8	square
10	9.84	2.99	3.46	9.29	9.84	8.27	12.48	11.06	12	square
12	11.81	2.99	3.46	9.29	9.84	9.65	14.72	13.31	12	square

Mounting Pad for Actuation – Dimension (inches)

Sizes 1-1/2" to 8"

Sizes 10" to 12"



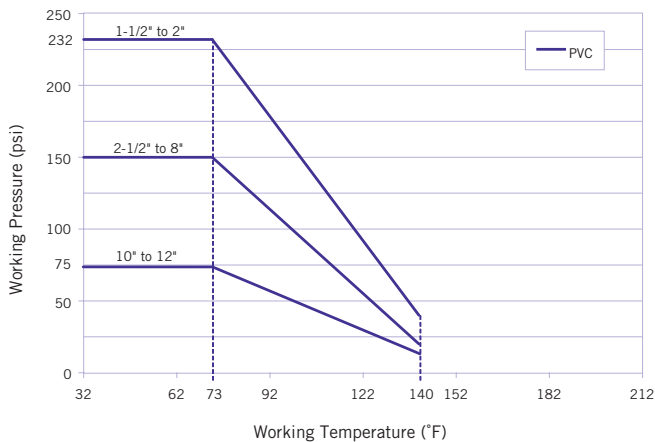
Size	ISO	J	P	T	Q
1-1/2	F05	0.28	1.97	0.47	0.43
2	F05	0.28	1.97	0.47	0.43
2-1/2	F05 / F07	0.28 / 0.35	1.97 / 2.76	0.47	0.43
3	F07	0.35	2.76	0.63	0.55
4	F07	0.35	2.76	0.63	0.55
5	F07	0.35	2.76	0.75	0.67
6	F07	0.35	2.76	0.75	0.67
8	F10	0.43	4.02	0.94	0.87
10	F10 / F12 / F14	0.43 / 0.51 / 0.67	4.02 / 4.92 / 5.51	0.94	0.87
12	F10 / F12 / F14	0.43 / 0.51 / 0.67	4.02 / 4.92 / 5.51	0.94	0.87

Product Data Sheet

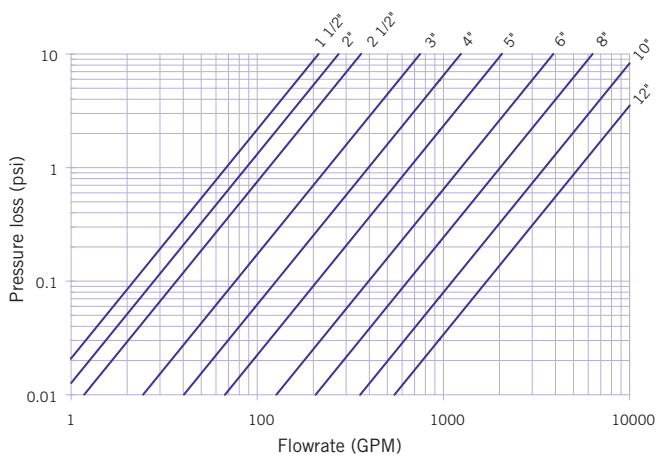
Weights

Size	Approximate Weight (lbs)		
	Valve	w/ Handle	w/ Gear Box
1-1/2	1.27	1.82	-
2	1.66	2.23	-
2-1/2	2.20	3.13	5.25
3	3.09	3.62	5.73
4	3.86	4.39	6.50
5	5.62	6.68	9.70
6	7.28	8.22	11.24
8	13.23	18.17	20.41
10	26.46	-	41.01
12	41.89	-	56.44

Pressure – Temperature Ratings



Pressure Loss Chart



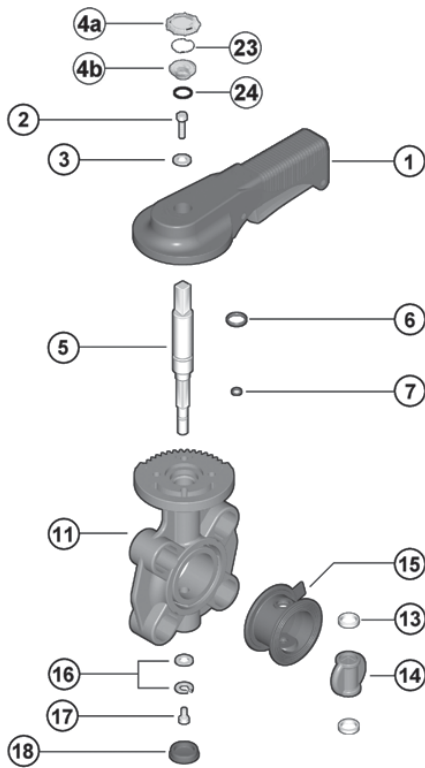
Flow Coefficients

Size	C _v
1-1/2	70
2	90
2-1/2	119
3	249
4	413
5	690
6	1309
8	2135
10	3724
12	5712

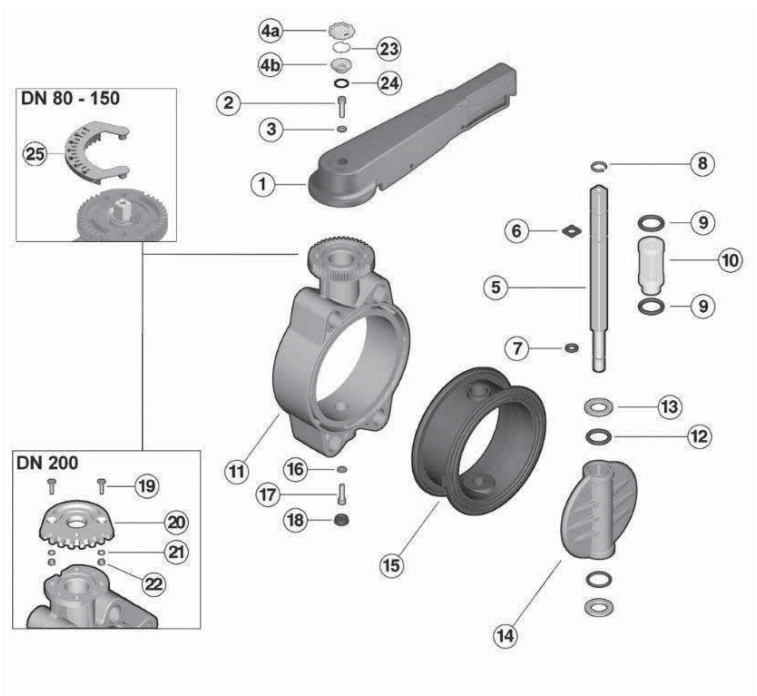
Product Data Sheet

Components

Sizes 1-1/2" to 2"



Sizes 2-1/2" to 8"



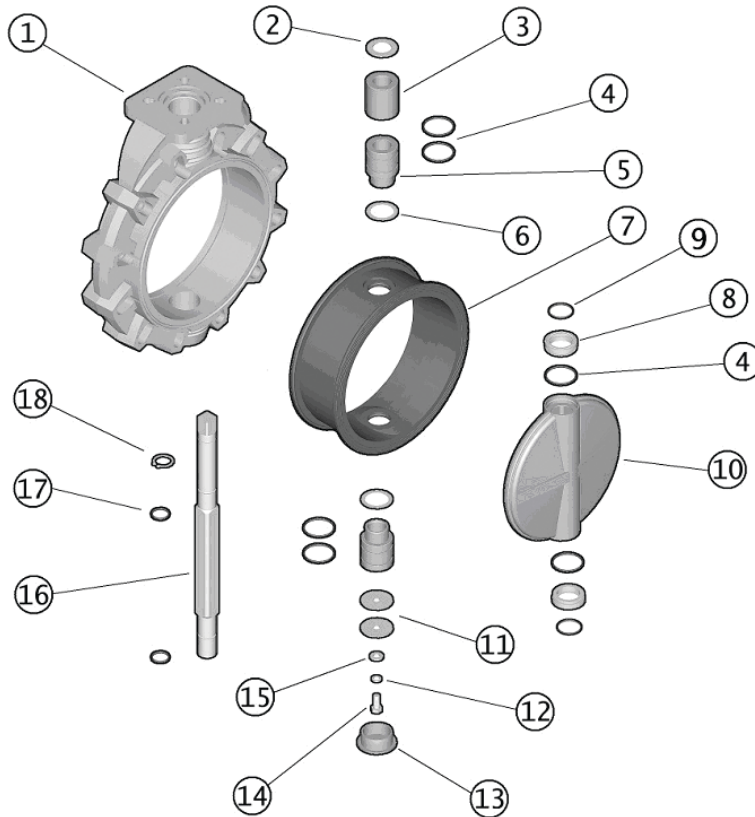
#	Component	Material	Qty
* 1	handle	PVC	1
2	screw	SS	1
3	washer	SS	1
4	cap	PE	1
4 a,b	transparent service plug	PVC	1
* 5	shaft	zinc plated steel	1
* 6	shaft o-ring	EPDM	1
* 7	shaft o-ring	EPDM	1
8	retaining ring	SS	1
* 9	bushing o-ring	EPDM	2
10	bushing	Nylon	1
11	body	PVC	1
* 12	disc o-ring	EPDM	2

#	Component	Material	Qty
* 13	anti-friction ring	PTFE	2
* 14	disc	PVC	1
* 15	primary liner	EPDM	1
16	washer	SS	1
17	screw	SS	1
18	cap	PE	1
19	screw	SS	2
20	pad	PVC	1
21	washer	SS	2
22	nut	SS	2
23	tag holder	PVC	1
24	seal (o-ring)	NBR	1
25	position indicator	PVC	1

* Spare parts available

Components

Sizes 10" to 12"



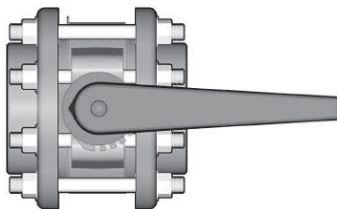
#	Component	Material	Qty
1	body	PVC	1
2	washer	SS	1
3	bushing	PP	1
* 4	bushing o-ring	EPDM	4
5	bushing for o-ring	PP	2
6	washer	PTFE	2
* 7	primary liner	EPDM	1
* 8	anti-friction ring	PTFE	2
* 9	disc o-ring	EPDM	2
* 10	disc	PVC	1
11	washer	SS	2
12	washer	SS	1
13	cap	PE	1
14	screw	SS	1
15	washer	SS	1
* 16	shaft	Zinc Plated Steel	1
* 17	shaft o-ring	EPDM	2
18	retaining ring	SS	1

* Spare parts available.

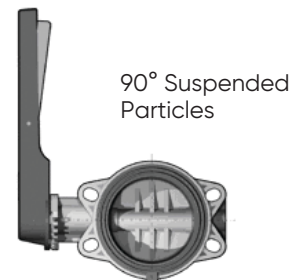
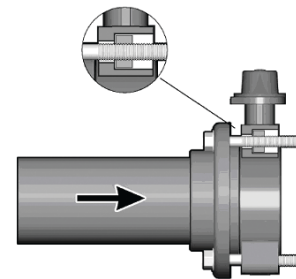
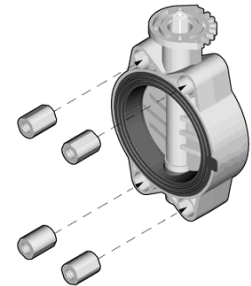
Installation Procedures

1. For the lever handle style, attach the handle (part #1 on previous pages) to the valve body (11) using the supplied bolt (2) and washer (3). Affix the cap (4) over the bolt.
2. **Ensure that the length of the bolts is sufficient for the size of valve being installed. Due to the varying designs of plastic flanges, there is no recommended minimum length. However, a length that results in at least 5 exposed threads on each side should be sufficient.**
3. Please refer to the appropriate application sub-section:
 - a. For typical inline installation, ensure that the disc is in the partially closed position then carefully insert the valve into the piping system between the two flanges. **Insert the bolts, washers, and nuts (if necessary), then hand tighten. Take care to properly line up the valve and flanges as any misalignment may cause leakage.**
 - b. For lugged version end of line installation, insert the necessary steel lugs into the valve body. Ensure that the disc is in the partially closed position then carefully position the valve on the flange. Insert the bolts, and washers, then hand tighten. **Take care to properly line up the valve and flange as any misalignment may cause leakage.**
4. To avoid damage to the primary gasket, cycle the valve to the open position before tightening the bolts. **The bolts should be tightened in an even pattern to the nominal torque in the table below. These torque ratings are sufficient to maintain a watertight seal at the maximum rated operating pressure.**

Note: End of line installation will cause the maximum rated pressure to be reduced to the values listed in the table below. If the process media is dirty or contains suspended particles, it is advisable to install the valve in an orientation in which the shaft is not vertical (see diagrams). Over time, particles may collect at the bottom of the valve posing a threat to the seal between the disc, liner, and shaft.



Size	Nominal Bolt Torque ((ft-lbs)	Lugged Pmax (psi)
1-1/2	7	90
2	9	90
2-1/2	11	90
3	13	90
4	15	90
5	26	90
6	30	60
8	41	60
10	52	-
12	52	-



Disassembly

1. If removing the valve from an operating system, isolate the valve from the rest of the system.
Be sure to depressurize and drain the isolated branch before continuing.
2. Cycle the valve to a partially open position then loosen each bolt holding the valve to the pipe flange(s). Follow the same pattern when disassembling the flanged joint(s) then carefully remove the valve from the line.

Sizes 1-1/2" to 8"

3. For the lever handle style, remove the protection cap (4) then loosen the screw (2) and washer (3) to remove the handle (1).
4. For the mounted gear box style, loosen and remove the bolts and washers fixed to the gear box. Carefully remove the gear box from the valve taking care not to damage the stem.
5. For 8" sizes, loosen and remove the bolts (19), washers (21), and nuts (22) then remove the spacer pad (20) from the valve body.
6. Remove the cap (18) then loosen and remove the screw (17) and washer(s) (16) from the base of the valve body.
7. Carefully pull the shaft (5) out of the valve body then remove the disc (14).
8. Remove the primary liner (15) from the valve body.
9. Remove the nylon bushing (10) and o-rings (9) from the valve body (sizes 2-1/2" to 8").
10. Remove the disc anti-friction rings (13), and o-rings (12, sizes 2-1/2" to 8").
11. Remove the retaining ring (8, sizes 2-1/2" to 8") and o-rings (6, 7) from the shaft.
12. The valve components can now be checked for problems and/or replaced.

Sizes 10" to 12"

3. Loosen and remove the bolts and washers fixed to the gear box. Carefully remove the gear box from the valve taking care not to damage the stem.
4. Remove the cap (13) then loosen and remove the screw (14) and washers (11, 12, and 15) from the base of the valve body (1).
5. Carefully pull the shaft (16) out of the valve body then remove the disc (10).
6. Remove the primary liner (7) from the valve body
7. Remove the upper and lower bushings (3, 5), washers (2, 6), and o-rings (4) from the valve body.
8. Remove the disc anti-friction rings (8) and o-rings (4, 9).
9. Remove the retaining ring (18) and o-rings (17) from the shaft.
10. The valve components can now be checked for problems and/or replaced.

Assembly

Note: Before assembling the valve components, it is advisable to lubricate the o-rings with a water soluble lubricant.

Sizes 1-1/2" to 8"

1. Insert the primary liner (15) into the valve body (11). **Ensure that the proper holes line up with those on the body.**
2. Properly fit the o-rings (9) on the nylon bushing (10) (sizes 2-1/2" to 8") then insert into the valve body from above.
3. Properly fit the disc o-rings (12, sizes 2-1/2" to 8") and anti-friction rings (13) on the disc (14), then insert into the valve liner taking care to center the holes.
4. Properly fit the o-rings (6, 7) and retaining ring (8, sizes 2-1/2" to 8") in their grooves on the shaft (6), then carefully insert into the valve body from above.
5. Fasten the shaft at the base of the valve body using the screw (17) and washer (16). Affix the cap (18) over the bolt.
6. For 8" sizes, affix the spacer pad (20) to the valve body using the screws (19), washers (21), and nuts (22).
7. For the lever handle style, affix the handle (1) using the screw (2), washer (3), and protection cap (4).
8. For the mounted gear box style, carefully place the gear box on the stem, lining up the holes. Fasten using the necessary bolts and washers.

Sizes 10" to 12"

1. Insert the primary liner (7) into the valve body (1). **Ensure that the proper holes line up with those on the body.**
2. Properly fit the o-rings (4) on the upper and lower bushings (3, 5) then insert into the valve body from above and below along with the washers (2, 6).
3. Properly fit the disc o-rings (4, 9) and anti-friction rings (8) on the disc (10), then insert into the valve liner taking care to center the holes.
4. Properly fit the o-rings (17) and retaining ring (18) in their grooves on the shaft (16), then carefully insert into the valve body from above.
5. Fasten the shaft at the base of the valve body using the screw (14) and washers (11, 12, and 15). Affix the cap (13) over the bolt.
6. Carefully place the gear box on the stem, lining up the holes. Fasten using the necessary bolts and washers.

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