

DTP-BFV-12.001.R6



CONTROL BUTTERFLY VALVE
SERIES: C50, C51, C52, C52
C60, C61, C62, C63

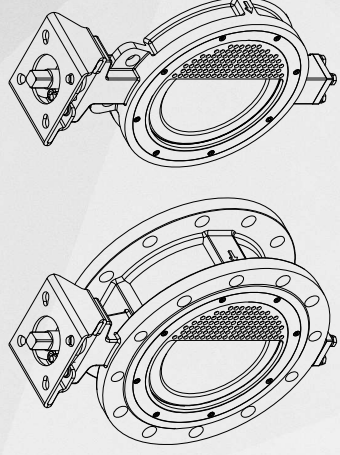
Control Butterfly Valves

Overview of Features



C50 & C51 Series

- Lug, Wafer, and Flanged (Short) sizes 3" - 24"
- Class 150 and Class 300:
 - C50 - CLASS 150 - ANSI/DIN WAFER
 - C51 - CLASS 150 - ANSI LUG
 - C52 - CLASS 150 - DIN LUG
 - C53 - CLASS 150 - ISO 5752 FLANGED (SHORT)
 - C60 - CLASS 300 - ANSI/DIN WAFER
 - C61 - CLASS 300 - ANSI LUG
 - C62 - CLASS 300 - DIN LUG
 - C63 - CLASS 300 - ISO 5752 FLANGED (SHORT)
- **Body Materials:**
 - ASTM A216 WCB
 - ASTM A351 CF8M
 - ASTM B148 C95800 ALUMINUM BRONZE
 - 2205 DUPLEX SS-UNS S32205/F51/F60
 - 2507 SUPER DUPLEX SS-UNS S32750/F53
 - ASTM B367 TITANIUM, GRADE C2



Control Butterfly Valves

Part Number Builder

Example Part Number

A-SIZE	-	B-CODE	-	C-BODY	-	D-DISC	-	E-STEM	-	F-SEAT	-	G-OPERATOR	-	H-SPECIAL
040		C50		C		S		O		P		BST		

Part Number Builder

A-SIZE	-	B-CODE	-	C-BODY
030-3"	100-10"	C50 - CLASS 150 - ANSI/DIN WAFER		C - ASTM A216 WCB
040-4"	120-12"	C51 - CLASS 150 - ANSI LUG		S - ASTM A351 CF8M
050-5"	140-14"	C52 - CLASS 150 - DIN LUG		B - ASTM B148 C95800 ALUMINUM BRONZE
060-6"	160-16"	C53 - CLASS 150 - ISO 5752 FLANGED (SHORT)		D - 2205 DUPLEX SS-UNS S32205/F51/F60
080-8"	180-18"	C60 - CLASS 300 - ANSI/DIN WAFER		E - 2507 SUPER DUPLEX SS-UNS S32750/F53
		C61 - CLASS 300 - ANSI LUG		T - ASTM B367 TITANIUM, GRADE C2
		C62 - CLASS 300 - DIN LUG		
		C63 - CLASS 300 - ISO 5752 FLANGED (SHORT)		

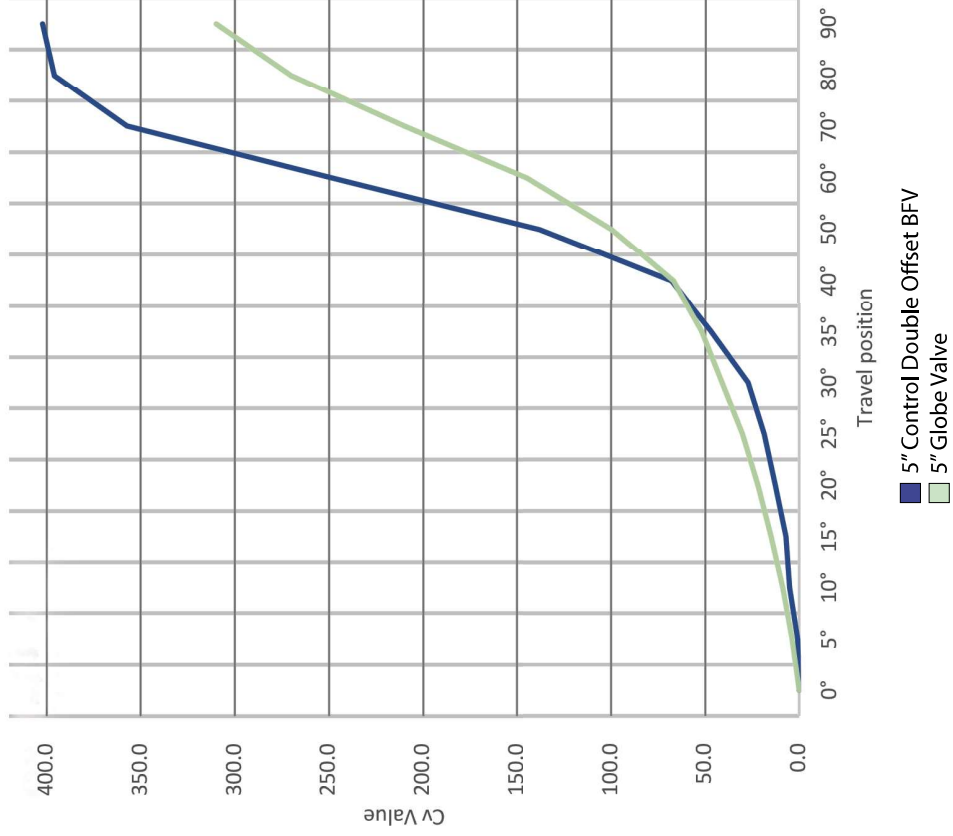
D-DISC	-	E-STEM	-	F-SEAT
S - ASTM A351 CF8M		O - 316-ASTM A274-S31600		P - PTFE
X - 316 + HARD CHROME PLATING		P - 17-4PH-ASTM A564-TYPE630/17-4PH		R - RTFE
B - ASTM B148 C95800 ALUMINUM BRONZE		D - 2205 DUPLEX SS-UNS S32205/F51/F60		T - TFM 1600
D - 2205 DUPLEX SS-UNS S32205/F51/F60		E - 2507 SUPER DUPLEX SS-UNS S32750/F53		U - UHMWPE
E - 2507 SUPER DUPLEX SS-UNS S32750/F53		K - N05500 MONEL K500		M - METAL SEATED SAME AS DISC
T - ASTM B367 TITANIUM, GRADE C2		T - ASTM B367 TITANIUM, GRADE C2		N - METAL SEATED INCONEL 600
				F - RTFE + 316 SS FIRE SAFE
				G - RTFE + INCONEL 600 FIRE SAFE
				H - TFM 1600 + 316 SS FIRE SAFE
				I - TFM 1600 + INCONEL 600 FIRE SAFE

G-OPERATOR	-	H-SPECIAL
BST - BARE STEM		BLANK - (NONE)
HND - LEVER HANDLE		XS - EXTENDED BONNET/STEM
GOP - GEAR OPERATOR		HC - HARD CHROME COATED DISC
Cxx - CHAIN/WHEEL OPERATOR		EN - ENP COATED DISC
("xx" = LENGTH)		HF - HARD FACE STELLITED DISC
		O2 - CLEANED AND BAGGED FOR OXYGEN SERVICE
		SF - SILICONE FREE CLEANED
		VS - VACUUM SERVICE
		FF - CUSTOM FACE TO FACE DIMENSION

Control BFV vs. Globe Valve

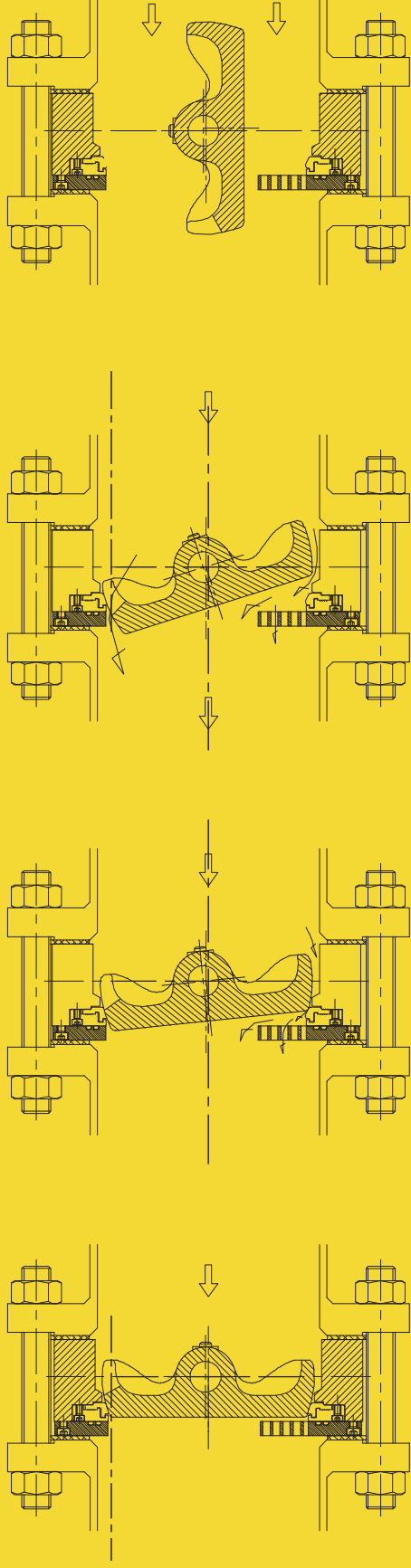
Cv Values & Travel Position

Cv Value to Travel Position | Control BFV vs Globe Valve

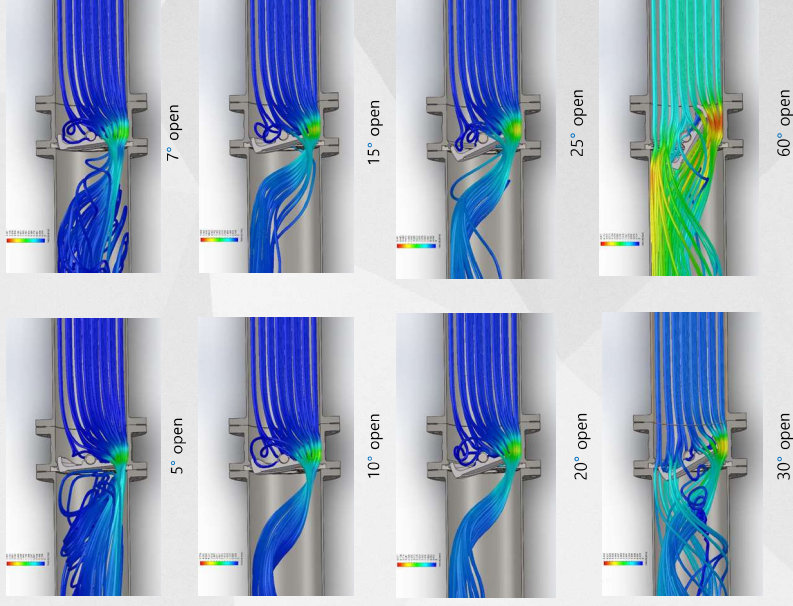
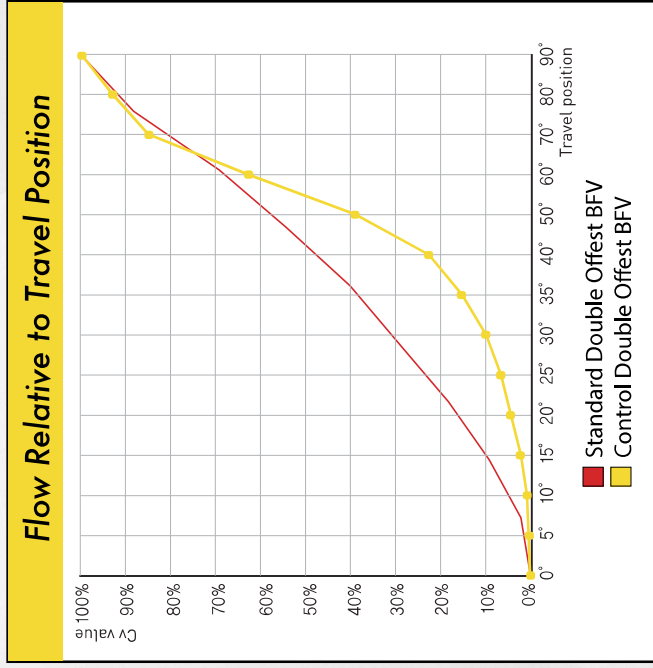


Control Butterfly Valves
Flow Path & Relative Disc Rotation

Flow Path & Relative Disc Rotation



Control Butterfly Valves CV Values & Flow Simulation

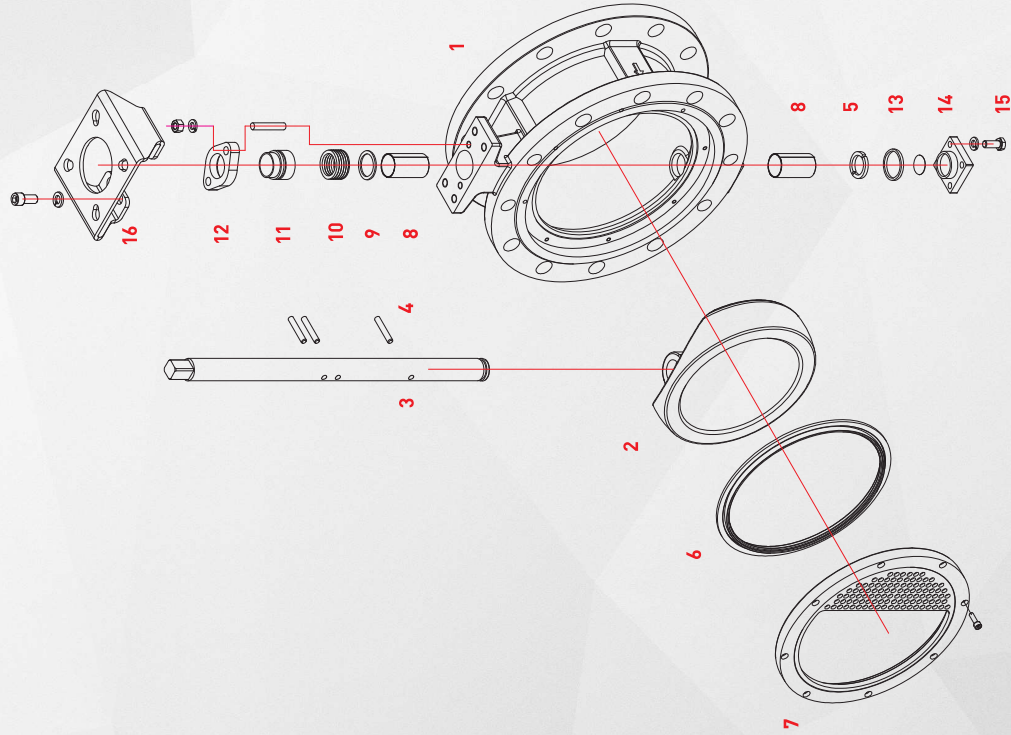


Cv Values

Size	Travel Position																	
	0°	5°	10°	15°	20°	25°	30°	35°	40°	50°	60°	70°	80°	90°				
3 in	0	0.1	0.2	2.2	5.0	8.5	12	16	23	39	63	93	115	121				
4 in	0	0.2	1.9	4.0	7.2	13.2	20	33	48	83	137	193	213	226				
5 in	0	0.7	5.8	7.0	13	18	27	47	68	138	249	357	396	402				
6 in	0	0.8	6.6	15	27	41	60	90	130	225	360	485	530	573				
8 in	0	1.8	15	29	52	72	107	150	217	394	666	985	1090	1215				
10 in	0	4.5	28	66	104	127	180	230	335	583	886	1291	1791	1988				
12 in	0	6.6	55	81	146	172	255	380	549	1042	1814	2926	3533	3646				
14 in	0	21	69	126	159	226	354	490	728	1232	1867	2586	3142	3531				
16 in	0	30	75	145	195	275	420	620	950	1600	2455	3723	4782	5556				
18 in	0	45	95	189	245	370	590	790	1250	2100	3216	4822	6061	6818				

Control Butterfly Valves

Exploded View & Materials



NO.	Part	Materials	Material Standard
1	Body	Carbon Steel	ASTM A216 WCB
		Stainless Steel	ASTM A351 CF8M
2	Disc	Aluminium Bronze	ASTM B148 C95800 Aluminium Bronze
		Stainless Steel	ASTM A351 CF8M
3	Stem	Aluminium Bronze	ASTM B148 C95800 Aluminium Bronze
		Hard Facing	HCR, Stellite or ENP
4	Disc Pin	Stainless Steel	304, 316, 420
		17-4PH	ASTM A564 630
5	Stem Retainer	K500 Monel	ASTM B865 NO5500
		17-4PH	ASTM A564 630
6	Seat	Stainless Steel	304, 316, 420
		Stainless Steel	ASTM A240 304, 316
7	Insert Ring	PTFE	PolyTetraFluoroEthylene
		RTFE	Reinforced PTFE, RTFE
8	Bush Bearing	Stainless Steel	316, Incolon 625, Incoloy 825
		Fire Safe	RTFE / 316 Stainless Steel
9	Packing Retainer	Carbon Steel	ASTM A36
		Stainless Steel	ASTM A240, 304, 316
10	Packing	Aluminium Bronze	ASTM B148 C95400/C95800
		316 Stainless Steel with Teflon	
11	Gland	Stainless Steel	ASTM A240 316
		PTFE / RTFE - V Packing	Graphite
12	Gland bridge	Stainless Steel	ASTM A351 CF8
		Stainless Steel	ASTM A351 CF8
13	Bottom Packing	PTFE / RTFE	
		Graphite	
14	Bottom	Stainless Steel	ASTM A351 CF8
		304 / 316 Stainless Steel	
15	Bolt	Stainless Steel	ASTM A351 CF8
		Carbon Steel	ASTM A36
16	Bracket	Carbon Steel	ASTM A36

Control Butterfly Valves Torques & Seat Adjustment Factor

Seat Material Adjustment Factor

CODE	Seat material adjustment factors
R	RTFE 1.15
M, N, O, 1, 5	Metal 1.45
F, G, H, I	Fire Safe 1.35

Seating Torques for PTFE/TFM Seats (in-lbs)

Size in	mm	50		100		150		200		290	
		Water	Dry	Water	Dry	Water	Dry	Water	Dry	Water	Dry
3	80	398	518	425	552	451	587	504	656	544	708
4	100	571	742	624	811	664	863	770	1,001	836	1,087
5	125	677	880	717	932	797	1,036	1,022	1,329	1,208	1,571
6	150	903	1,174	943	1,225	1,301	1,691	1,553	2,019	1,898	2,468
8	200	1,646	2,140	1,819	2,364	2,270	2,951	2,655	3,452	3,624	4,712
10	250	2,164	2,813	2,509	3,262	3,319	4,315	3,731	4,850	5,257	6,835
12	300	2,761	3,590	3,717	4,833	5,125	6,662	6,160	8,008	8,762	11,391
14	350	4,235	5,506	6,041	7,853	7,594	9,872	9,200	11,960	12,944	16,827
16	400	5,271	6,852	7,594	9,872	9,585	12,461	12,772	16,603	18,202	23,662
18	450	6,930	9,009	9,891	12,858	12,373	16,085	16,555	21,522	23,711	30,825
20	500	10,116	13,151	14,444	18,778	18,042	23,455	24,176	31,429	34,691	45,098
24	600	17,299	22,488	21,627	28,115	27,043	35,157	36,231	47,100	51,976	67,569

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