



Kingdom

FLOW CONTROL CO., LTD.

**Triple Offset Butterfly Valves
Metal-Seated &
Laminated Sealings**



Product Features

- Triple Offset Disc Rotation
To minimize the rubbing of the seat & seal contact surface and achieve integrity sealing
- Replaceable Seat & Seals - Reduced maintenance cost
Available with Graphite or PTFE Laminated Sealings
- Fire Safe Design Approved - According to ISO 10497
- Low Fugitive Emissions - ISO 15848-1 Approved
- Leakage Rate: ANSI / FCI 70-2 Class V or better
- Bi-Directional Sealing Capabilities

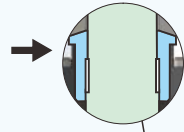


Design / Product Overview

Size	NPS 6 ~ NPS 24	DN150~DN600
Pressure Rating :	Class150	PN16
Material :	Stainless Steel Carbon Steel Alloy Steel	
End Connection:	Wafer Type Flange Type	
Temperature Range:	-29°C~+350°C	
Design	API 609	DIN EN 593
Face-to-Face	API 609	DIN EN 558
End Flanged	ASME B16.5	DIN EN 1092-1
Wall Thickness	ASME B16.34	EN 12516-1

Stem Blow Out Prevention Ring

Blow-out protection prevents the shaft from blowing out under pressure



Universal mounting

ISO5211 platform design



Stem Bearing

Ensuring the rigidity and stability of the shaft.

Lateral Fixed Pins

Ensure maximum stem strength

Laminated Seal Rings

- Available with Graphite or PTFE laminated sealing
- Replaceable Seals
- Provides Reliable zero leakage Sealings

Disk Flange Ring

The coordinated and aligned flanged rings ensure the sealing system with perfect tightness.

Live-loaded Stem Packing Gland

- Adjustable in-line packing for easy maintenance
- Supporting tight stem sealing by automatic compensation



Stem Sealing System

Low Emission Design to provide high sealing performance (In compliance with ISO 15848-1 and TA-Luft Standards)

Fire Safe Design

ISO 10497 Certified

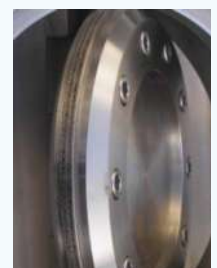
Disk & Disk Seal

- Optimized disc design for maximum flow capacity
- Bi-Directional in tight sealing

PTFE
Laminated Sealing

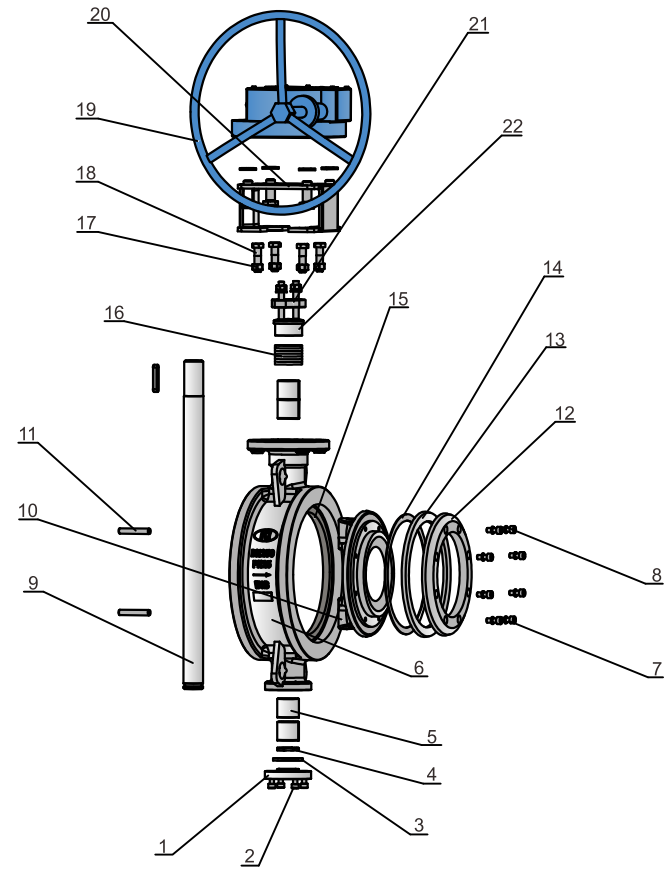


Graphite
Laminated Sealing

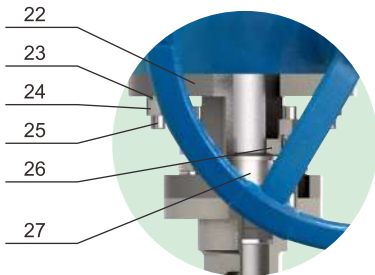


Applicable Standards:

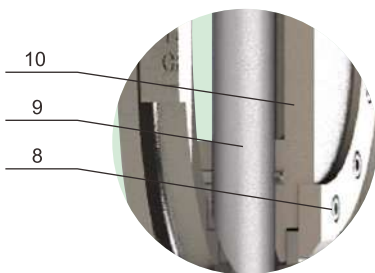
- Design : API 609 / DIN EN 593
- Rating : CLASS 150 / PN16
- Face to Face : API 609 / DIN EN 558
- End Flanged : ASME B16.5 / DIN EN 1092-1
- Inspection & Testing : API 598 / EN 12266
- Wall Thickness : ASME B16.34 / EN 12516-1
- Temperature : -29°C ~ +350°C



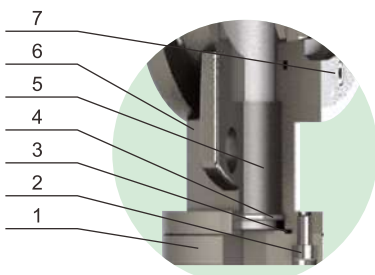
Details A



Details B

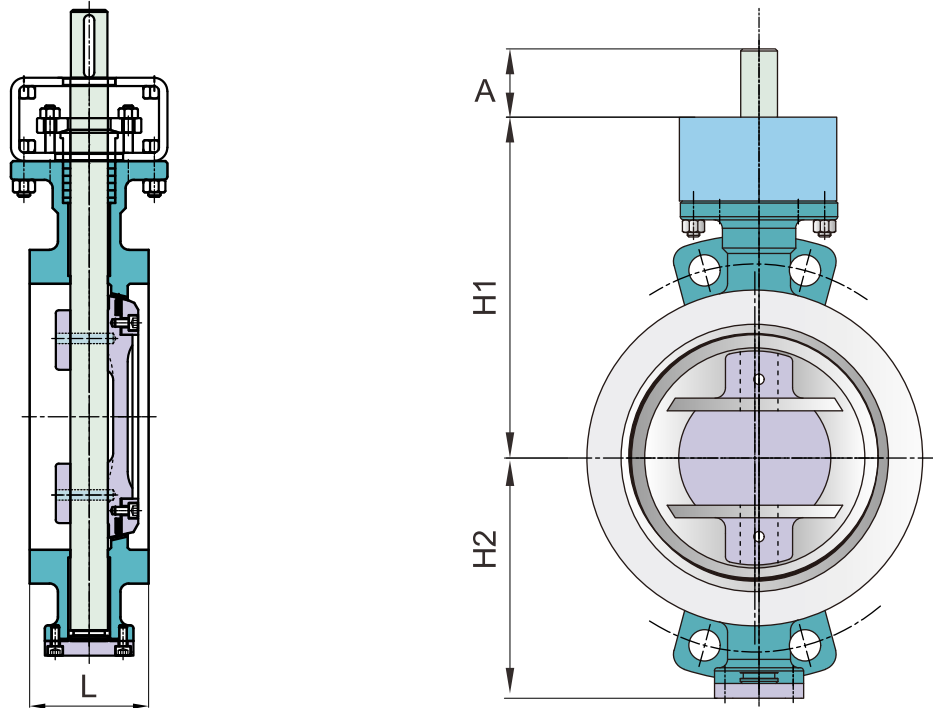


Details C



MATERIAL OF CONSTRUCTION

Item	Component	Carbon Steel	Stainless Steel	
1	Bottom End Cap	A105	A182-F304	A182-F316
2	Bolt	8.8	A2-70	
3	Bottom End Cap Gasket	304SS+Grafoil		
4	Split Collar	304		
5	Sleeve	316+PTFE/316+QPQ		
6	Body	WCB	CF8	CF8M
7	Bolt	A2-70		
8	Bolt	A2-70		
9	Stem	A564-630(17-4PH)		
10	Disc	WCB	CF8	CF8M
11	Pin	329	2205	
12	Disc Pressure Ring	A105	A182-F304	A182-F316
13	Seal Ring	SS+Grafoil/SS+PTFE		
14	Disc Gasket	304SS+Graphite		
15	Seat	WCB+410	CF8	CF8M
16	Stem Packing	Graphite		
17	Washer	SUS301		
18	Bolting Nut	8	A2-70	
19	Bolt	8.8	A2-70	
20	Gearbox	Assembly		
21	Yoke	A216-WCB		
22	Washer	SUS301		
23	Bolting Nut	8	A2-70	
24	Bolt	8.8	A2-70	
25	Gland Flange	WCB	CF8	CF8M
26	Gland	A105	A276-304	A276-316



Unit : mm

SIZE	Wafer type ASME CL. 150(KB-M571)				
NPS	H1	H2	A (stem protrusion)	L	Weight (kg)
6	271	176	40	57	14.2
8	309	209	40	64	25
10	425	243	55	71	40.1
12	395	274	55	81	54.4
14	442	305	65	92	82.4
16	493	340	80	102	105
18	502	360	80	114	128
20	544	403	80	127	181
24	620	471	120	154	340

Unit : mm

SIZE	Wafer type DIN PN16 (KB-M57K)				
DN	H1	H2	A (stem protrusion)	L	Weight (kg)
150	271	176	40	56	13.8
200	309	209	40	60	24.3
250	425	243	55	68	38
300	395	274	55	78	52.1
350	442	305	65	92	82.4
400	493	340	80	102	105
450	502	360	80	114	128
500	544	403	80	127	181
600	620	471	120	154	340

Cv Value

Class 150 / PN 16

• Note: Cv = 1.167Kv

Size NPS	Percent of Rated Travel									
	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
3	10	23	37	55	75	99	123	136	146	155
4	19	44	77	123	163	213	276	330	351	369
6	36	108	185	263	370	507	688	875	1011	1063
8	55	172	315	462	626	889	1123	1423	1623	1678
10	103	255	468	846	1093	1378	1845	2371	2790	2956
12	166	415	701	1054	1515	2050	2720	3401	4038	4191
14	229	526	904	1304	1840	2833	3707	5517	7220	7527
16	383	554	988	1621	2552	3837	5590	7607	9442	10208
18	484	809	1470	2433	3680	5242	6901	8759	10657	12287
20	509	1123	1925	3088	4451	6388	8621	11436	14108	14725
24	539	1342	2475	4000	6146	9166	12772	16189	20629	23338
28	688	1535	2662	4521	6776	10420	15895	22110	29294	30800
30	715	1725	3293	5724	9254	14274	21723	30037	33550	34650
32	748	1828	3489	6065	9803	15121	23014	31821	37664	39600
36	867	2247	4316	7943	12596	19674	29850	42130	46871	49280
40	1320	3025	5720	9790	15950	24090	32670	44017	60576	63690
42	1432	3190	6160	10120	16500	25520	39050	55000	67980	71500
44	1485	3460	6681	10976	17896	27679	42354	59654	73732	77550
48	1656	4000	7724	12689	20686	31998	48963	68961	85237	89650

Class 300

Size NPS	Percent of Rated Travel									
	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
3	9	17	30	48	64	94	120	130	141	150
4	14	42	74	118	132	177	205	227	245	260
6	33	86	161	254	313	418	483	567	646	661
8	52	95	279	415	605	847	1079	1190	1364	1390
10	101	152	451	682	986	1299	1593	1921	2609	2641
12	130	307	669	1035	1433	1918	2428	2885	3213	3425
14	205	398	706	1140	1654	2357	2879	3496	4311	4770
16	241	499	942	1604	2211	3529	4826	5939	7295	7636
18	286	726	1311	2177	2937	4698	6145	7662	9216	10029
20	385	1073	1816	2834	4320	6140	8415	10538	12934	14010
24	419	1087	2088	3713	5098	8078	10685	13416	16653	17992
28	472	1222	2340	3841	6000	10229	15752	22000	25905	26950
30	545	1394	2459	4322	6700	12210	19030	26180	31790	33330
32	550	1540	2970	5390	7800	13310	20460	29150	33990	35310
36	671	1738	3740	7040	11100	19360	29180	38610	44880	46750

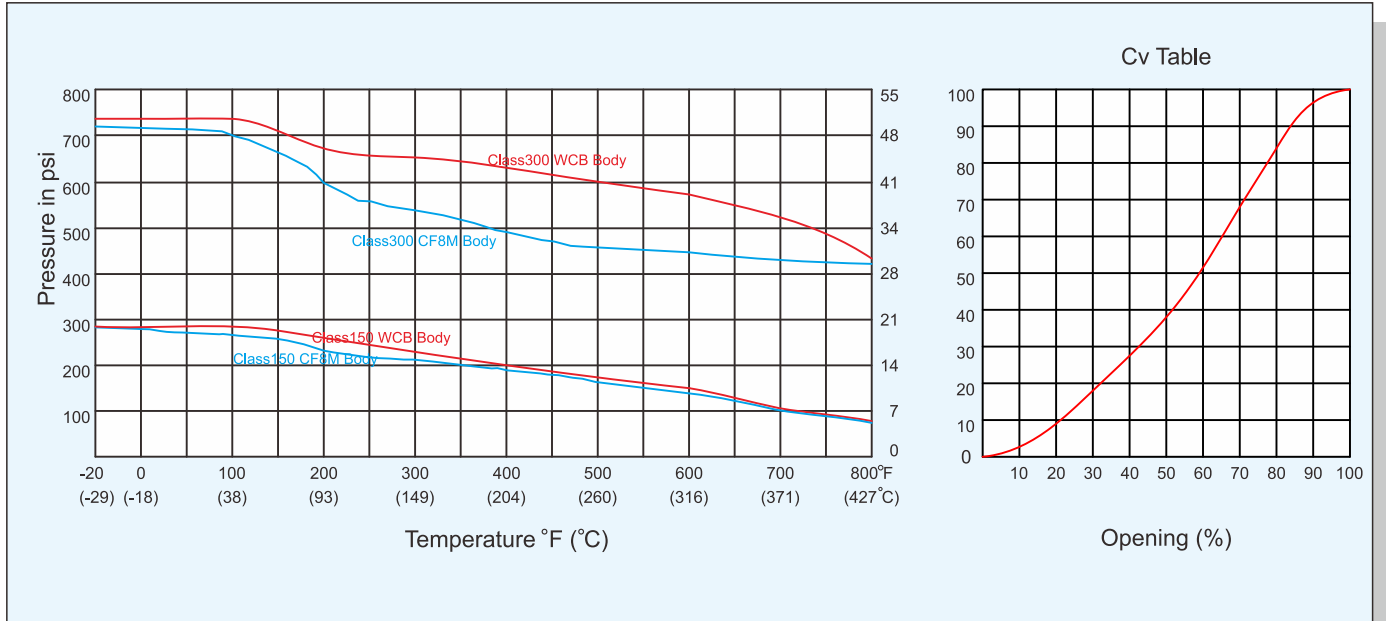
Torque (N·m)

Size		Differential Pressure (bar) 20		Differential Pressure (bar) 50	
NPS	DN	close	open	close	open
3	80	79	89	134	154
4	100	108	132	188	236
6	150	150	267	334	430
8	200	265	423	525	1063
10	250	475	750	969	1724
12	300	676	1122	1371	2537
14	350	818	1529	1655	3283
16	400	1078	2099	2186	5613
18	450	1371	2783	2770	6405
20	500	1490	3277	3000	8327
24	600	2162	5456	4324	12821
28	700	5458	18389	—	—
30	750	6259	25311	—	—
32	800	7219	26900	—	—
36	900	10632	36319	—	—
40	1000	13159	44689	—	—
42	1050	14611	57523	—	—
48	1200	22853	70641	—	—

• Note: For actuator sizing, a safety factor of minimum 30% is recommended.

Pressure - Temperature Chart

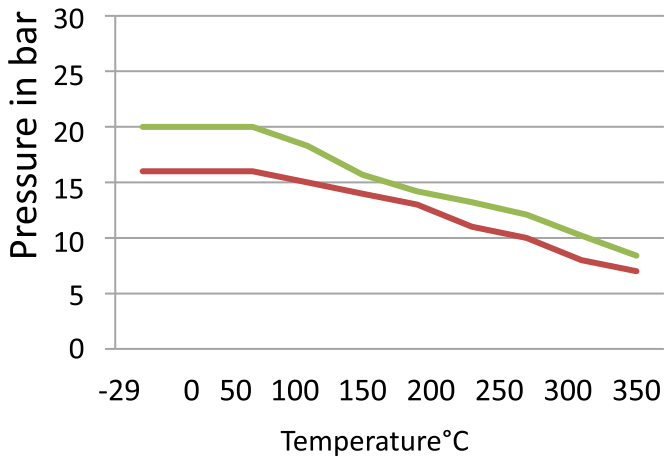
1. Metal Seated KV-M3 series



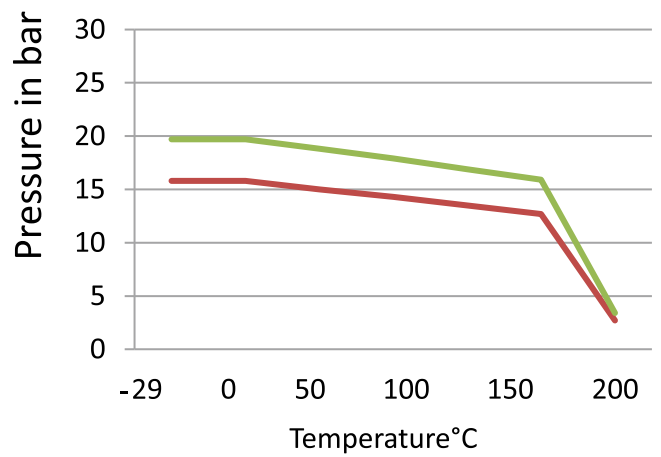
2. Laminated Sealing Structure

— PN16-CF8M
— CL150-CF8M

Seal Ring: 304+Graphite
Pressure - Temperature Chart



Seal Ring: 304+PTFE
Pressure - Temperature Chart



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