

Butterfly Valve



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Model Code System Instructions

□	□	□	□	□	□	□	□	□
Code of company	Code of valve	Code of performance feature	Code of driving manner	Code of connection	Code of structure	Code of seal material	Code of pressure	Code of body material

- Company code: K - CONVISTA
- Valve code: D - Butterfly valve
- Performance feature code: RT - Hot-air adjustable
- Driving manner code: 3 - worm wheel 6 - Pneumatic 6s - Air operated with handle transmission
9 - Electric actuator
- Connection code: 4 - Flange 6 - Welding 7 - Wafer
- Structure code: 1 - Center-line 2 - Single-Eccentric 3 - Bi-Eccentric 4 - Variable Eccentric 5 -
Tri-Eccentric
- Seal material code: X - Rubber F - PTFE J - Rubber lining H - Alloy Steel Y - Hard alloy
- Pressure code: Class
- Body material code: Z - HT200 C - WCB P - CF8 R- CF8M

I.E. KD343F-CL150 represents CL150, worm wheel, flange connection, bi-eccentric, WCB body material, PTFE seal material

Design Structure, Products Specifications and Performance Data

Design Features

Butterfly valves are widely applied for pipeline close and open or flow control in fields like water supply&drainage, architecture, industrial water treatment, chemical industry, medicine, food&beverage etc.

Main structure features are as follows:

1. Simple structure, small size, less weight and small installation dimension
2. With both soft and hard seal applicable to variable working conditions, good sealing performance and long life-span.
3. Fire-proof structured butterfly valves can prevent fire expanding because, once soft soft sealed valve seat catches fire and gets damaged, the stainless steel seal ring will react to keep the valve emergency-sealed.
4. Small flow resistance when valve fully opened, sensitive flow control when valve partially opened
5. Small driving torque, convenient and quick operations

Product Specifications		
Model Code	KD (3,6,9) 4 (6,7) 2 (3,4,5) F (X,H,W,Y)	
Pressure Range	CL150~600	
Size(inch)	1 1/2"~136"	
Driving Manner and Application Scope	Handle operated	CL150~300
		3"~6"
	Worm wheel	CL150~600
		3"~40"
	Electric operated	CL150~600
		3"~40"
	Pneumatic operated	CL150~300
		8"~32"

*Products can also be provided per customer's requirement.

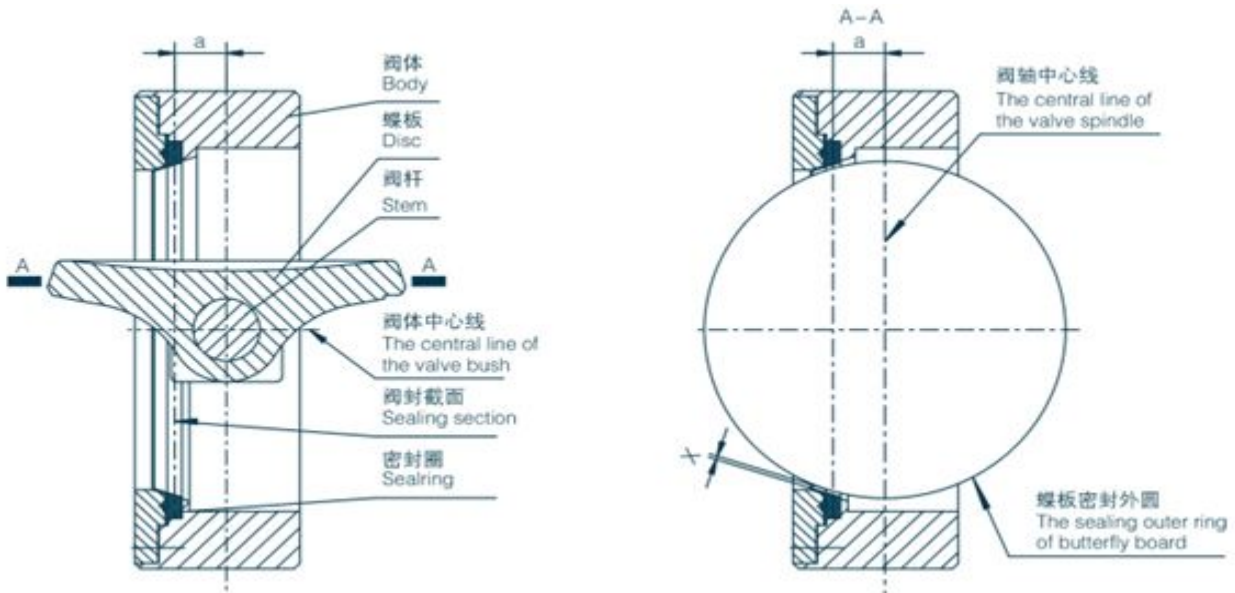
Performance Data		
Pressure Rating	CL150~600	
Test Pressure (Mpa)	Shell Test	1.5xPN
	Seal Test	1.1xPN
	Air test	0.6MPa
Working Temperature	-46°C~+425°C	
Applicable Medium	Water, oil, gas, corrosive medium etc.	

*PN is the nominal working pressure of body material under 38°C.

Sealing Principle Analysis

The seal structure for our butterfly valves mainly include: single eccentric seal, double eccentric seal, three-eccentric seal, various eccentric. The sealing structure of all kinds o butterfly valves are sketched as follows.

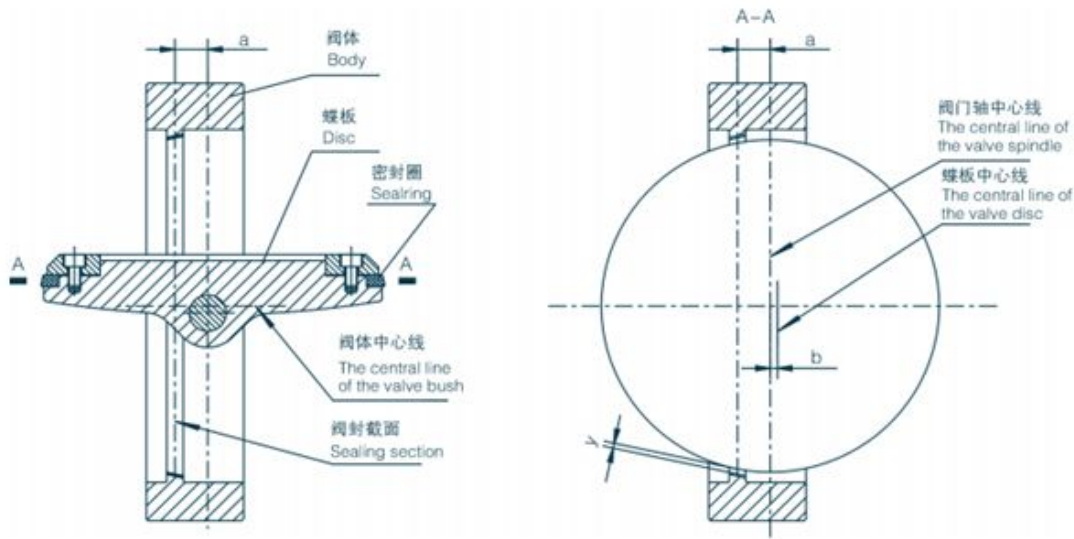
1. The Sealing Principle of Single Eccentric Butterfly Valves



The Sealing Structure of Single Eccentric Butterfly Valves

As the center of gyration of the disc(the center of valve spindle) and the sealing section of the disc are set up in eccentric(a), it makes the sealing section of the disc gradually separate from the sealing section of the valve seat in the course of opening the butterfly valve. When the disc revolves to 20°-25°,the sealing section of disc will completely brake away from the sealing section of the valve seat, and when completely opened, a gap X will be formed in two sealing section, thus making the relative mechanical wear and extrusion decrease between two sealing sections, and ensure the seal of the valve.

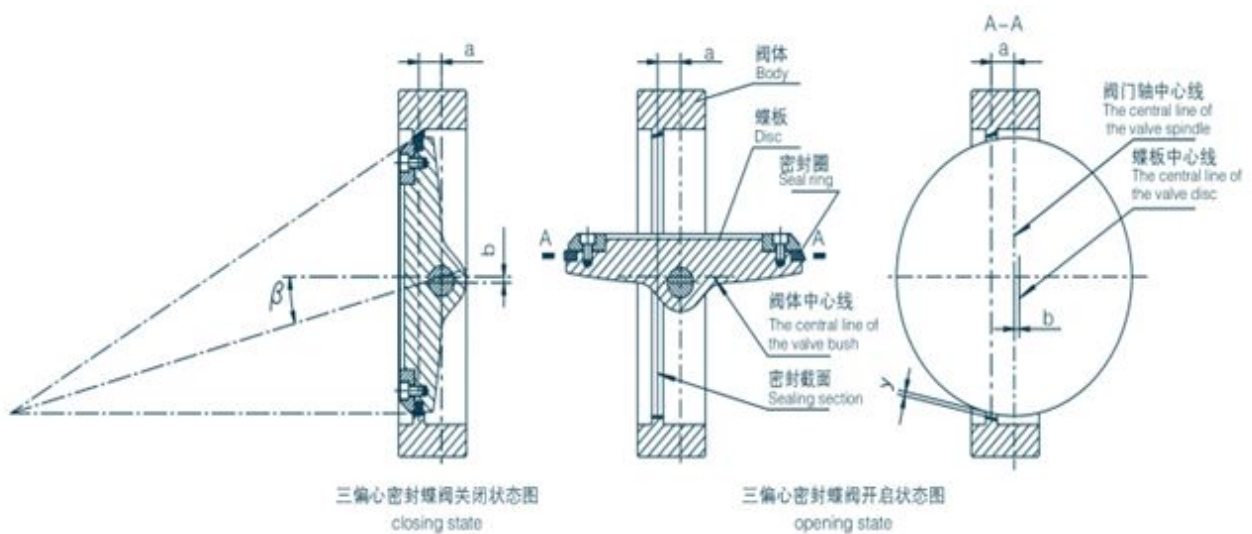
2.The Sealing Principle of Bi-Eccentric Butterfly Valves



The Sealing Structure of Double Eccentric Butterfly Valves

As making the center of gyration of the disc(the center of the valve spindle) form a polarization in size(b) with the central line of the valve bus, based on the single eccentric butterfly valve, which makes the sealing section of the disc brake away from the sealing section of the valve seat quicker than the single eccentric seal butterfly valve does,in the course of opening the butterfly valve,when the disc revolves to 8°-12°, the sealing section of the disc will completely brake away from the sealing section of the valve seat, and when completely opened,a bigger gap Y will be formed between two sealing sections. The design of this kind butterfly valve can greatly decrease the mechanical wear and extrusion and deformation, and improve further the sealing performance of the butterfly valve.

3.The Sealing Principle of Tri-Eccentric Butterfly Valves

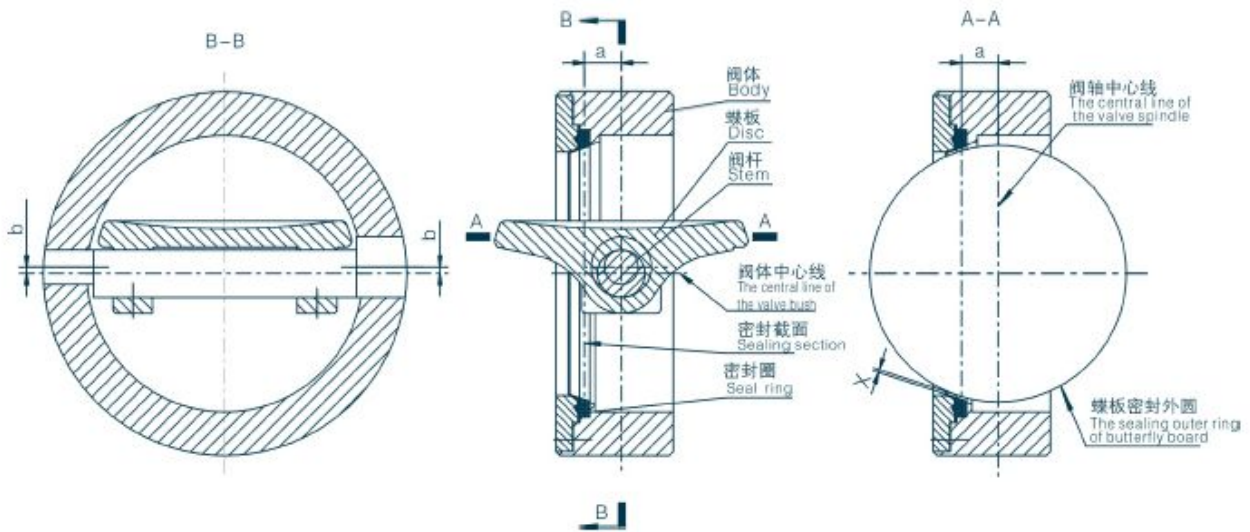


The Sealing Structure of Three-Eccentric Butterfly Valves

As making the central line of the valve seat form a polarization in angle β with the central line of the valve bush,

based on the double eccentric butterfly valves, which makes the sealing section of the disc immediately brake away from the sealing section of the valve seat the moment of opening, and contact the sealing section of the valve seat at the moment of closing, during the course of the opening and closing. When completely opened, a gap Y same to the double eccentric seal butterfly valve will be formed in the two sealing sections. The design of this kind butterfly valve can completely remove the mechanical wear and scratch between the two sealing sections, and greatly improve the sealing performance and the life span of the valve.

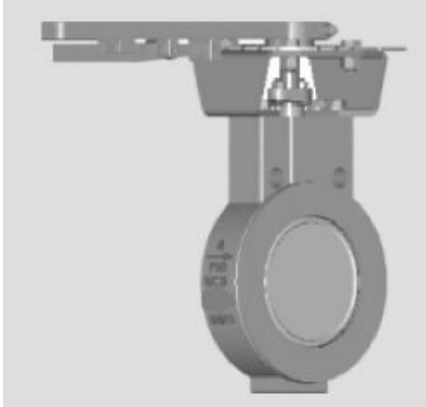
4.The Sealing Principle of Variable Eccentric Butterfly Valves



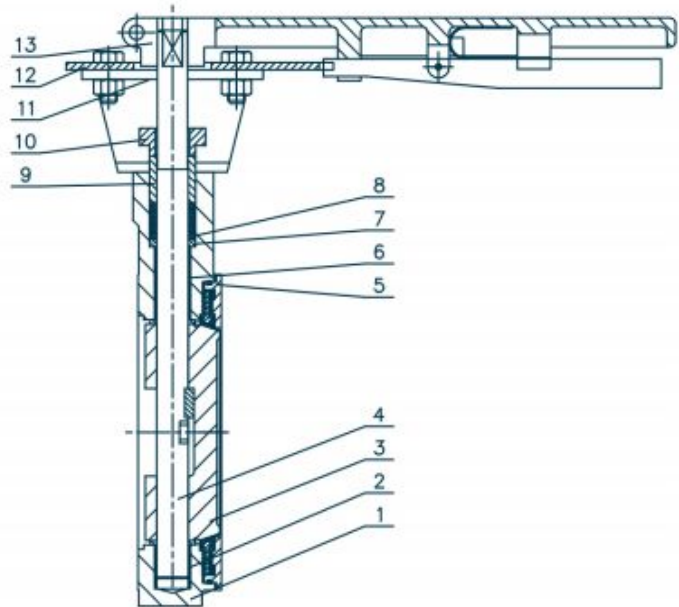
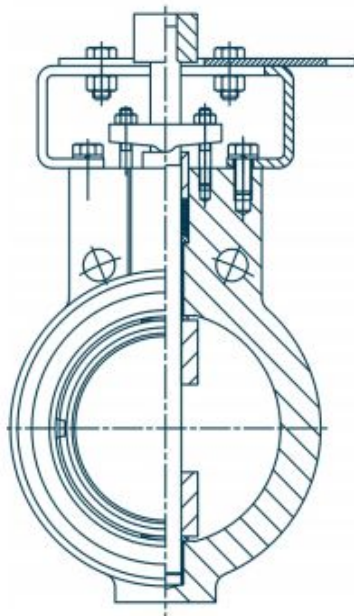
The Sealing Structure of Various Eccentric Butterfly Valves

The unique structure of the variable eccentric butterfly valve is the valve handle shaft for installation of the disc, with a structure three-parts style. There are two parts with a concentric shaft of the valve handle in three-parts style, but the central line of the middle shaft is a centerline spacing away from the shaft line of the both sides, and the disc is installed in the part of the middle shaft. This eccentric structure can make the disc be in the double eccentric at the fully-opened situation, but in the single eccentric when the disc is revolved. When approaching closing, the disc will move a distance towards the sealing conic section, and the sealing section of the disc and valve seat is in the reliability of sealing performance because of the function of the eccentric shaft.

Single Eccentric Butterfly Valves



Technical Specification	
Structural formation	single eccentric structure
Driving manner	manual, worm wheel&worm screw, pneumatic, electric
Design standard	API 609, MSS-SP-68
Face to face	ASME B16.10, API 609, MSS-SP-68
Flange connection	ASME B16.5, ASME B16.47
Test&inspection	API 598
* The flange size can be designed per customer requirement	

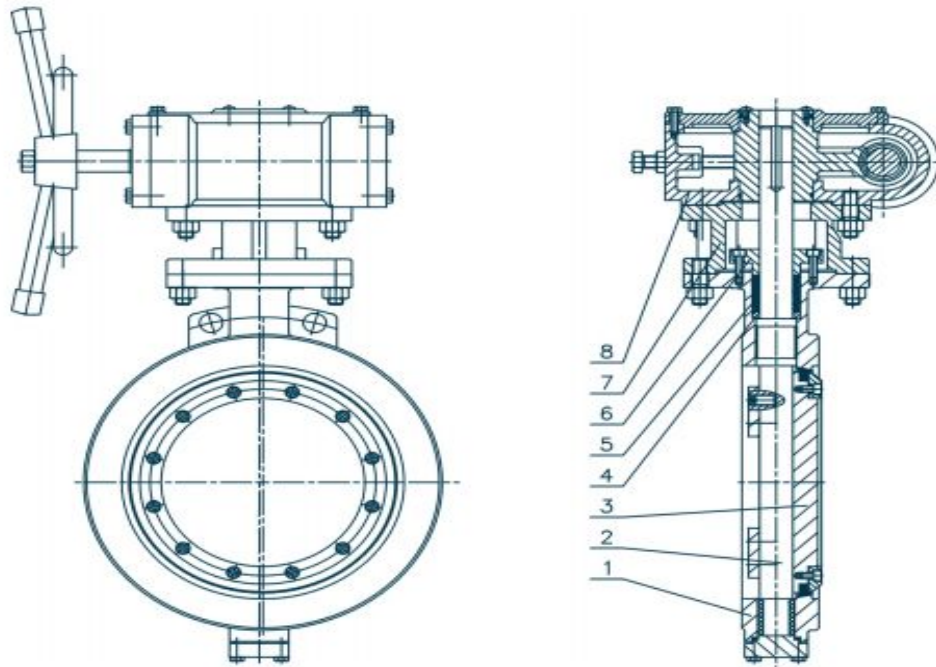


Major Parts Material					
No.	Name	Material	No.	Name	Material
1	body	WCB,CF8,CF8M,CF3,CF3M	8	packing	flexible graphite
2	bush	Nikealium, stainless steel+PTFE	9	gland	2Cr13
3	disc	WCB,CF8,CF8M,CF3,CF3M	10	gland flange	WCB,CF8,CF8M
4	stem	1Cr13,2Cr13,1Cr18Ni9Ti, 0Cr18Ni12Mo2Ti	11	yoke	WCB,CF8,CF8M,CF3,CF3M
5	sealing part	25+rubber,25+F6,stainless steel	12	indicating plate	stainless steel
6	bush	Nikealium, stainless steel+PTFE	13	wrench	KTH330,QT400
7	packing seat	2Cr13			

Bi-Eccentric Butterfly Valves



Technical Specification	
Structural formation	bi-eccentric structure
Driving manner	manual, worm wheel&worm screw, pneumatic, electric
Design standard	API 609, MSS-SP-68
Face to face	ASME B16.10, API 609, MSS-SP-68
Flange connection	ASME B16.5, ASME B16.47
Test&inspection	API 598
* The flange size can be designed per customer requirement	

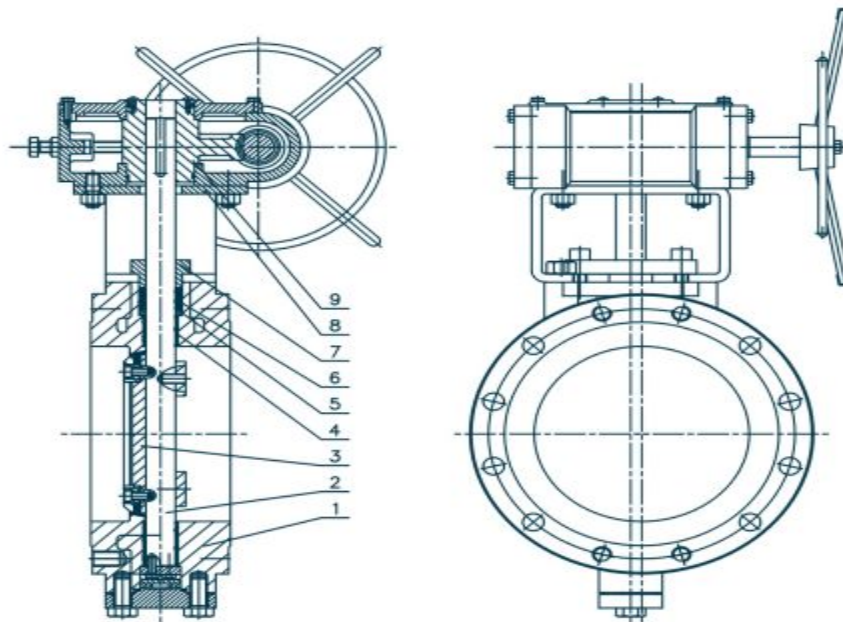


Major Parts Material					
No.	Name	Material	No.	Name	Material
1	body	WCB,CF8,CF8M,CF3,CF3M	5	packing	flexible graphite
2	stem	1Cr13,2Cr13,1Cr18Ni9Ti, 0Cr18Ni12Mo2Ti	6	Gland flange	WCB,CF8,CF8M
3	disc	WCB+F4,WCB+stainless steel composite parts, WCB+F6,CF8,CF8M	7	yoke	WCB,CF8,CF8M,CF3,CF3M
4	packing seat	2Cr13	8	worm device	

Tri-Eccentric Butterfly Valves



Technical Specification	
Structural formation	Tri-eccentric structure
Driving manner	manual, worm wheel&worm screw, pneumatic, electric
Design standard	API 609, MSS-SP-68
Face to face	ASME B16.10, API 609, MSS-SP-68
Flange connection	ASME B16.5, ASME B16.47
Test&inspection	API 598
* The flange size can be designed per customer requirement	

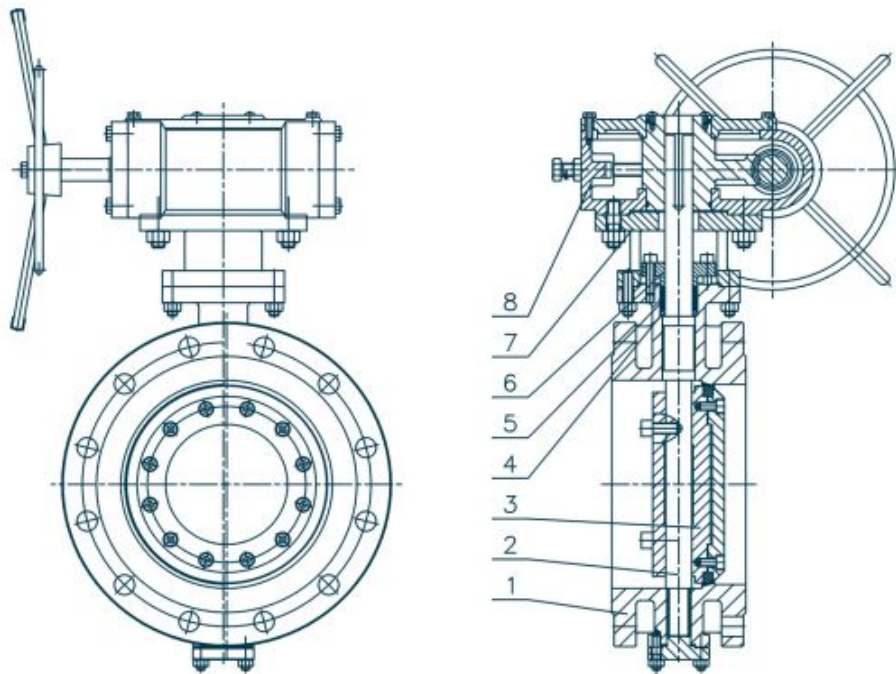


Major Parts Material					
No.	Name	Material	No.	Name	Material
1	body	WCB,CF8,CF8M,CF3,CF3M	6	packing	flexible graphite
2	stem	1Cr13,2Cr13,1Cr18Ni9Ti, 0Cr18Ni12Mo2Ti	7	gland flange	WCB,CF8,CF8M,CF3,CF3M
3	disc	WCB+F4,WCB+stainless steel composite parts, WCB+F6,CF8,CF8M	8	yoke	WCB,CF8,CF8M,CF3,CF3M
4	bush	Nikealium, stainless steel+PTFE	9	worm device	
5	packing seat	2Cr13			

Variable Eccentric Butterfly Valves

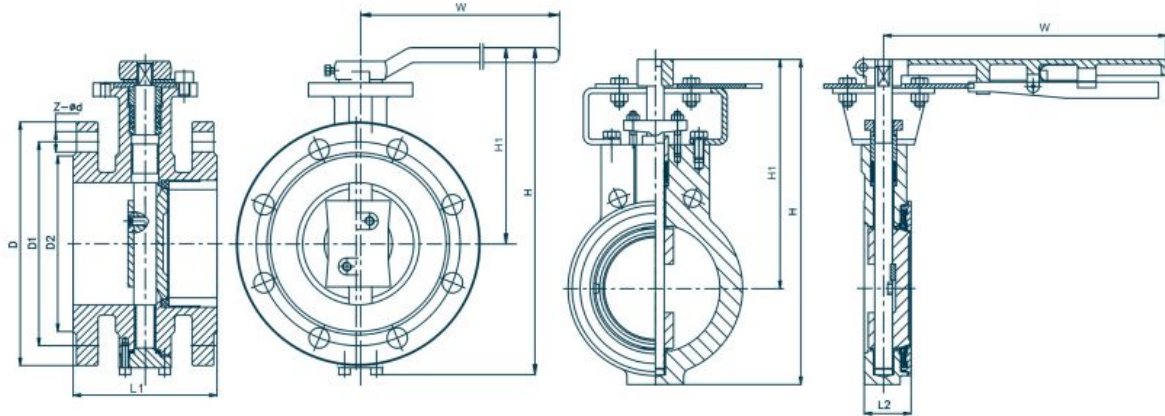


Technical Specification	
Structural formation	variable eccentric structure
Driving manner	manual, worm wheel&worm screw, pneumatic, electric
Design standard	API 609, MSS-SP-68
Face to face	ASME B16.10, API 609, MSS-SP-68
Flange connection	ASME B16.5, ASME B16.47
Test&inspection	API 598
* The flange size can be designed per customer requirement	



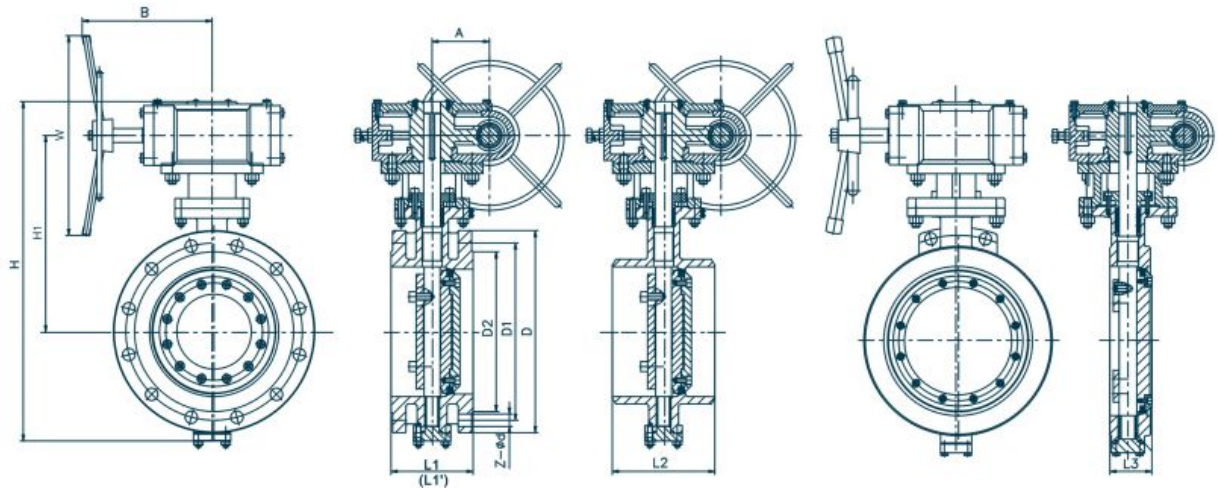
Major Parts Material					
No.	Name	Material	No.	Name	Material
1	body	WCB,CF8,CF8M,CF3,CF3M	5	packing	flexible graphite
2	stem	1Cr13,2Cr13,1Cr18Ni9Ti, 0Cr18Ni12Mo2Ti	6	Gland flange	WCB,CF8,CF8M,CF3,CF3M
3	disc	WCB+F4,WCB+stainless steel composite parts, WCB+F6,CF8,CF8M	7	yoke	WCB,CF8,CF8M,CF3,CF3M
4	packing seat	2Cr13	8	worm device	

Manual Butterfly Valves KD4 (7) 1 (2,3,4,5) F (X,H,W,Y)



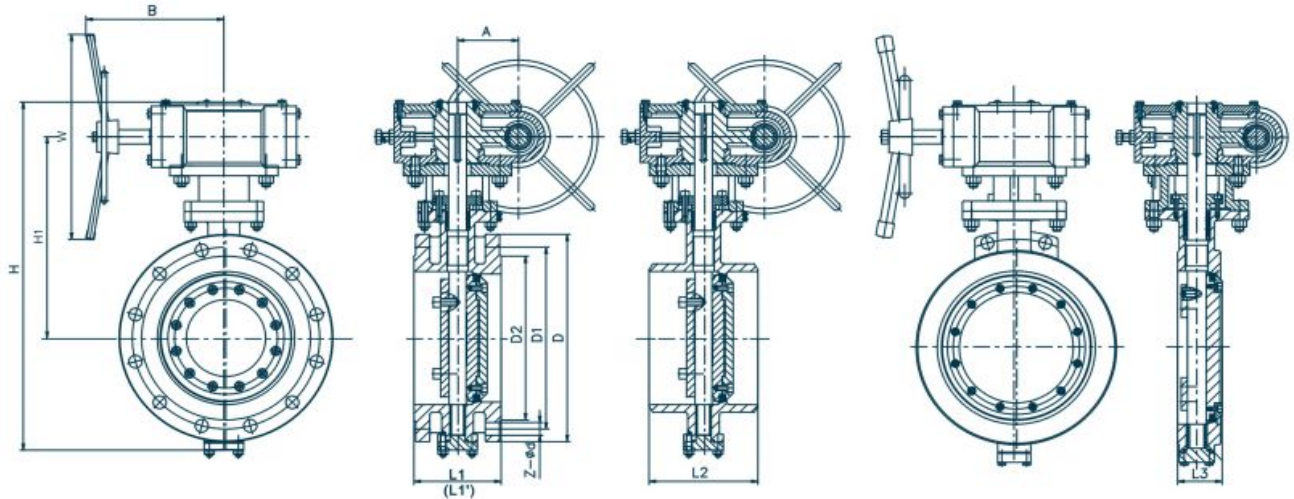
Main Dimensions											CL150~300	
CL	NPS	L1	L2	D	D1	D2	Z-φd	H1	H	W	Kg (L1)	Kg(L2)
150	3	114	48	190	152.5	127	4-φ20	187	262	250	8.9	7.7
	4	127	54	230	190.5	157	8-φ20	203	308	270	11	9.8
	5	140	55	255	216	186	8-φ22	215	324	300	14.5	13
	6	140	57	280	241.5	216	8-φ22	224	354	350	20	18
300	3	114	48	210	168.5	127	8-φ22	198	293	290	10	9
	4	127	54	255	200	157	8-φ22	203	310	320	13.5	12
	5	140	55	280	235	186	8-φ22	225	352	350	17.5	16
	6	140	59	320	270	216	12-φ22	235	384	380	24	22

Worm-Driving Butterfly Valve KD34 (6,7) 1 (2,3,4,5) F (X,H,W,Y)



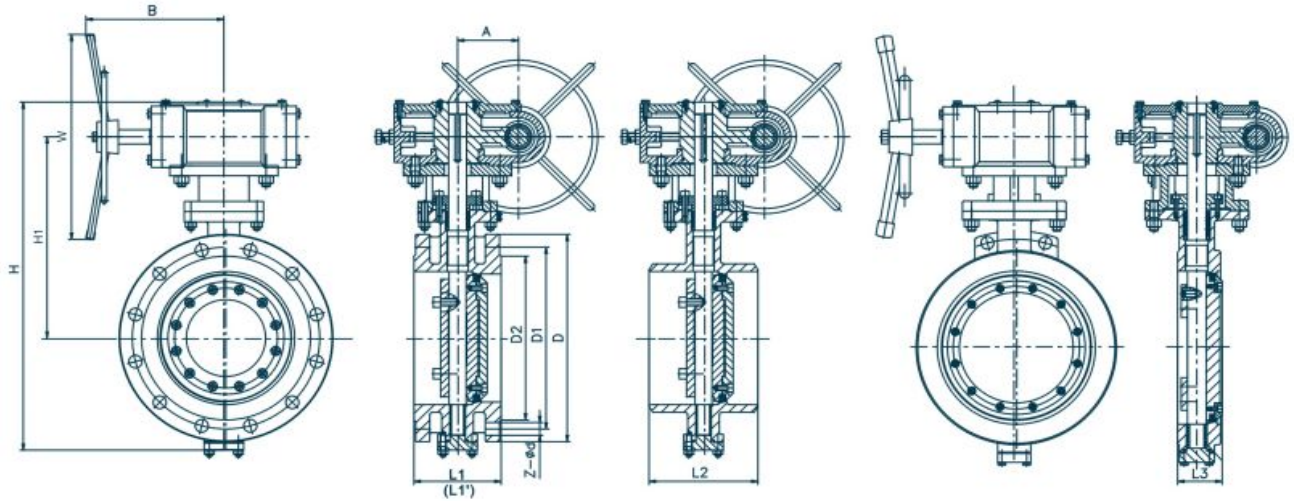
Main Dimensions													CL150			
NPS	L1	L2	L3	D	D1	D2	Z-Ød	H1	H	A	B	W	Worm Device Type	Kg (L1)	Kg (L2)	Kg (L3)
3	114	114	48	190	152.5	127	4-Ø19	185	320	140	63	160	O	30	27	22
4	127	127	54	229	190.5	157	8-Ø19	195	342	140	63	160	O	38	32	29
5	140	140	55	254	216	186	8-Ø22	209	365	140	63	300	A	42	40	30
6	140	140	57	279	241.5	216	8-Ø22	243	415	140	63	300	A	48	40	32
8	152	152	64	343	298.5	270	8-Ø22	263	510	150	84	400	B	90	77	62
10	165	165	71	406	362	324	12-Ø25	295	567	150	84	400	B	114	96	93
12	178	178	81	483	432	381	12-Ø25	342	665	200	108	600	C	148	125	99
14	190	190	92	533	476	413	12-Ø29	385	739	200	108	600	C	183	155	131
16	216	216	102	597	540	470	16-Ø29	430	825	240	152	600	C	215	183	146
18	222	222	114	635	578	533	16-Ø32	469	910	240	152	800	D	266	226	180
20	229	229	127	699	635	584	20-Ø32	500	990	300	168	800	D	337	286	229
24	267	267	154	813	749.5	692	20-Ø35	618	1210	320	192	800	D	511	434	347
28	292	292	229	937	846	794	28-Ø35	746	1475	237	168	400	DA	905	769	615
32	318	318	241	1060	978	908	28-Ø41	810	1600	237	168	400	DA	1221	1038	830
34	330	330	241	1168	1086	1022	32-Ø41	875	1728	237	168	400	DA	1576	1339	1071
40	410	410	300	1346	1257	1194	36-Ø41	965	1900	237	168	600	DB	2090	1776	1419

Worm-Driving Butterfly Valve KD34 (6,7) 1 (2,3,4,5) F (X,H,W,Y)



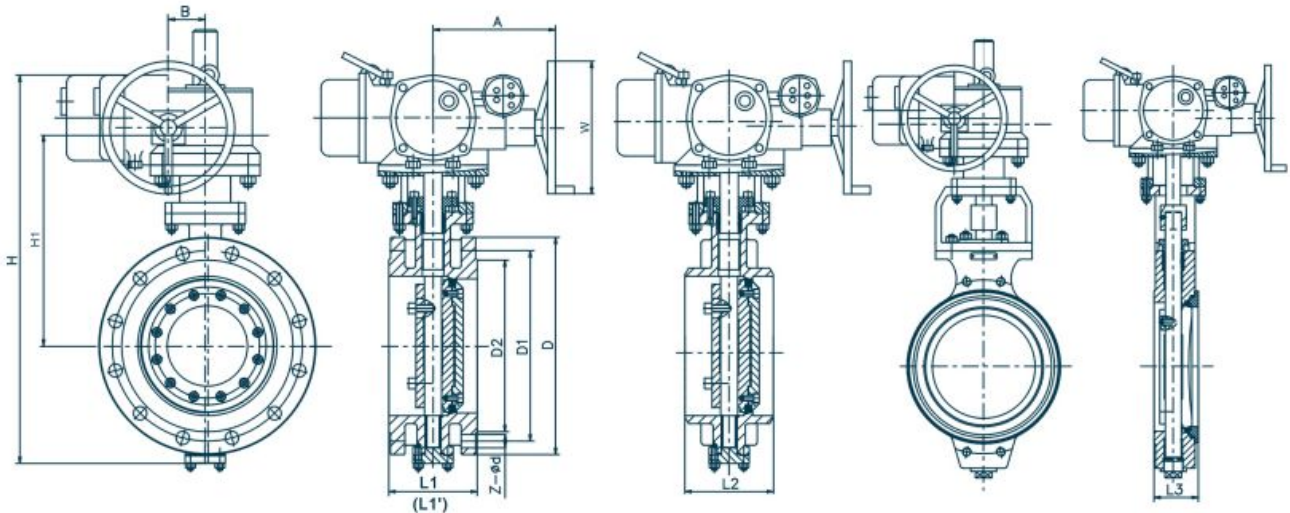
Main Dimensions														CL300		
NPS	L1	L2	L3	D	D1	D2	Z-Φd	H1	H	A	B	W	Worm Device Type	Kg (L1)	Kg (L2)	Kg (L3)
3	180	180	48	210	168.5	127	8-Φ22	241	395	140	63	300	A	27	32	24
4	190	190	54	254	200	157	8-Φ22	205	355	140	63	400	B	34	40	29
5	200	200	55	279	235	186	8-Φ22	215	378	140	63	400	B	48	58	50
6	210	210	59	318	270	216	12-Φ22	260	430	150	84	600	C	51	85	70
8	230	230	73	381	330	270	12-Φ25	273	523	150	84	600	C	95	108	102
10	250	250	83	445	387.5	324	16-Φ29	315	600	200	108	600	D	120	120	112
12	270	270	92	521	451	381	16-Φ32	362	693	200	108	800	D	150	156	142
14	290	290	117	584	514.5	413	20-Φ32	405	772	240	152	800	D	193	193	162
16	310	310	133	648	571.5	470	20-Φ35	440	862	300	168	800	DA	251	227	198
18	330	330	149	711	628.5	533	24-Φ35	525	960	320	192	400	DA	330	280	251
20	350	350	159	775	686	584	24-Φ35	603	1158	168	237	400	DA	460	378	355
24	390	390	181	914	813	692	24-Φ41	693	1320	168	237	300	DA	830	654	538

Worm-Driving Butterfly Valve KD34 (6,7) 1 (2,3,4,5) F (X,H,W,Y)



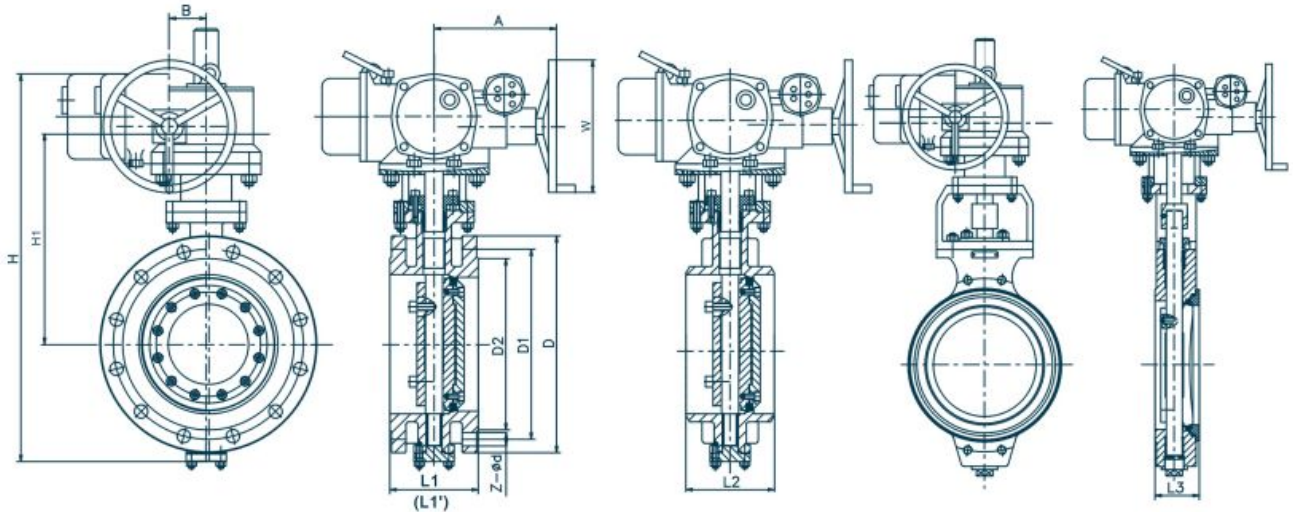
Main Dimensions													CL600				
NPS	L1	L2	L3	D	D1	D2	Z-Ød	H1	H	A	B	W	Worm Device Type	Kg (L1)	Kg (L2)	Kg (L3)	
3	180	180	54	210	168	127	8-Ø22	250	500	140	63	400	B	27	32	24	
4	190	190	64	273	216	157	8-Ø25	340	595	140	63	600	C	34	40	29	
5	200	200	70	330	266.5	186	8-Ø29	395	680	200	108	600	C	48	58	50	
6	210	210	78	356	292	216	12-Ø29	423	730	240	152	600	C	51	85	70	
8	230	230	102	419	349	270	12-Ø32	445	855	300	168	800	D	95	108	102	
10	250	250	117	508	432	324	16-Ø35	536	1002	320	192	800	D	120	120	112	
12	270	270	140	559	489	381	20-Ø35	614	1150	168	237	800	D	150	156	142	
14	290	290	155	603	527	413	20-Ø38	674	1200	168	237	400	DA	193	193	162	
16	310	310	178	666	603	470	20-Ø41	823	1345	168	237	400	DA	251	227	198	

Electric Butterfly Valve KD94 (6,7) 1 (2,3,4,5) F (X,H,W,Y)



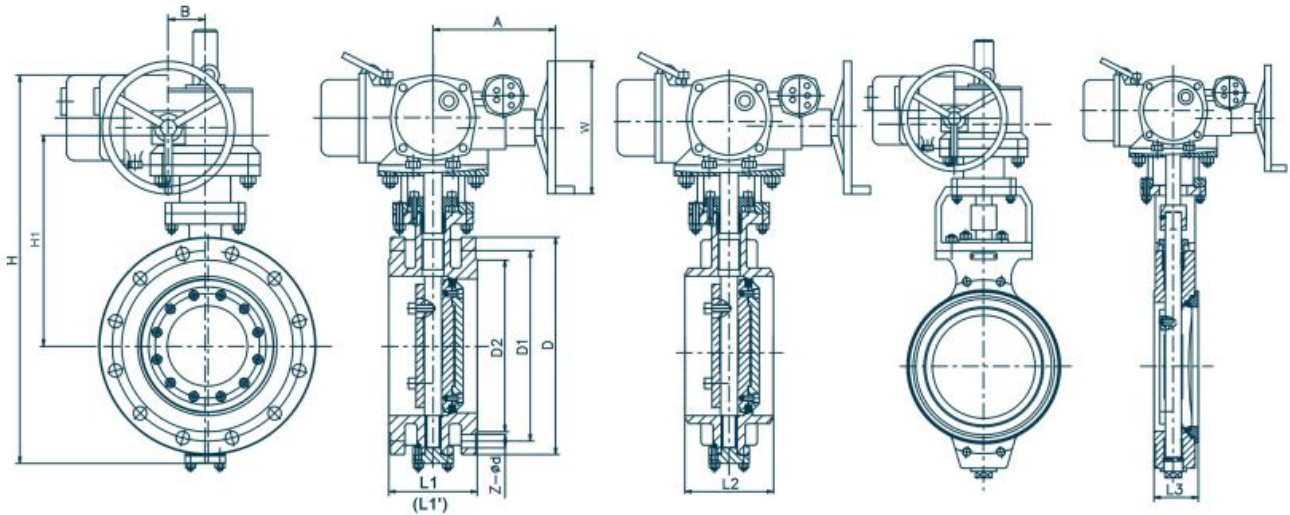
Main Dimensions													CL150			
NPS	L1	L2	L3	D	D1	D2	Z-Ød	H1	H	A	B	W	Electric Device	Kg (L1)	Kg (L2)	Kg (L3)
3	114	114	48	190	152.5	127	4-Ø19	263	513	180	178	-	DQW10-1	78	72	65
4	127	127	54	229	190.5	157	8-Ø19	282	535	180	178	-	DQW20-1	85	82	79
5	140	140	55	254	216	186	8-Ø22	293	563	180	178	-	DQW20-1	98	91	93
6	140	140	57	279	241.5	216	8-Ø22	322	602	180	178	-	DQW20-1	100	96	95
8	152	152	64	343	298.5	270	8-Ø22	296	745	370	235	365	DZW10	107	98	99
10	165	165	71	406	362	324	12-Ø25	325	805	370	235	365	DZW10	134	122	123
12	178	178	81	483	432	381	12-Ø25	365	883	370	235	365	DZW20	181	165	166
14	190	190	92	533	476	413	12-Ø29	408	965	370	235	365	DZW20	222	202	204
16	216	216	102	597	540	470	16-Ø29	443	1033	370	235	365	DZW20	262	239	241
18	222	222	114	635	578	533	16-Ø32	485	1120	370	235	365	DZW30	355	296	327
20	229	229	127	699	635	584	20-Ø32	518	1186	370	235	365	DZW30	404	368	360
24	267	267	154	813	749.5	692	20-Ø35	625	1380	370	235	365	DZW30	607	552	541
28	292	292	229	937	846	794	28-Ø35	745	1587	515	245	470	DZW60	1084	986	969
32	318	318	241	1060	978	908	28-Ø41	810	1717	515	245	470	DZW60	1481	1347	1325
34	330	330	241	1168	1086	1022	32-Ø41	872	1874	540	360	550	DZW90	1876	1706	1676
40	410	410	300	1346	1257	1194	36-Ø41	965	2030	540	360	550	DZW90	2466	2242	2204

Electric Butterfly Valve KD94 (6,7) 1 (2,3,4,5) F (X,H,W,Y)



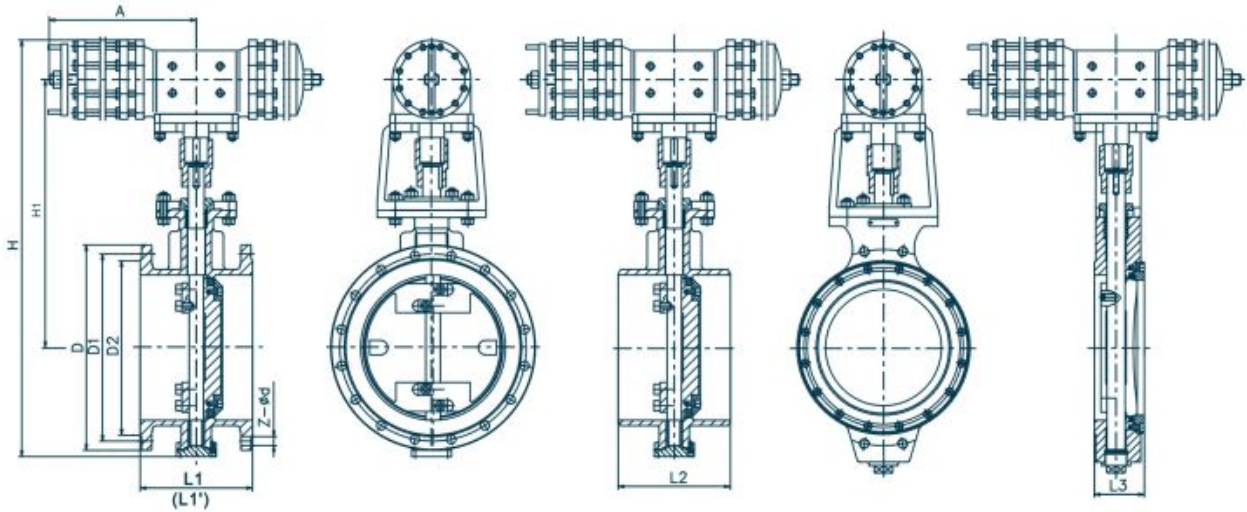
Main Dimensions													CL300			
NPS	L1	L2	L3	D	D1	D2	Z-Ød	H1	H	A	B	W	Electric Device	Kg (L1)	Kg (L2)	Kg (L3)
3	180	180	48	210	168.5	127	8-Ø22	242	530	180	178	-	DQW20-1	95	84	75
4	190	190	54	254	200	157	8-Ø22	204	552	180	178	-	DQW20-1	95	84	75
5	200	200	55	279	235	186	8-Ø22	214	580	180	178	-	DQW30-1	105	98	92
6	210	210	59	318	270	216	12-Ø22	259	610	180	178	-	DQW30-1	108	100	94
8	230	230	73	381	330	270	12-Ø25	310	755	370	235	365	DZW20	195	160	105
10	250	250	83	445	387.5	324	16-Ø29	340	816	370	235	365	DZW20	268	190	130
12	270	270	92	521	451	381	16-Ø32	390	912	370	235	365	DZW30	376	275	175
14	290	290	117	584	514.5	413	20-Ø32	425	980	370	235	365	DZW30	472	355	215
16	310	310	133	648	571.5	470	20-Ø35	460	1057	370	235	365	DZW30	560	430	254
18	330	330	149	711	628.5	533	24-Ø35	525	1140	370	235	365	DZW30	715	547	345
20	350	350	159	775	686	584	24-Ø35	556	1243	515	245	470	DZW60	890	680	379
24	390	390	181	914	813	692	24-Ø41	653	1420	540	360	550	DZW90	1078	990	570

Electric Butterfly Valve KD94 (6,7) 1 (2,3,4,5) F (X,H,W,Y)



Main Dimensions													CL600			
NPS	L1	L2	L3	D	D1	D2	Z-Φd	H1	H	A	B	W	Electric Device	Kg (L1)	Kg (L2)	Kg (L3)
3	180	180	54	210	168	127	8-Φ22	108	606	180	178	-	DQW20-1	95	84	75
4	190	190	64	273	216	157	8-Φ25	108	650	180	178	-	DQW20-1	95	84	75
5	200	200	70	330	266.5	186	8-Φ29	120	695	180	178	-	DQW30-1	105	98	92
6	210	210	78	356	292	216	12-Φ29	136	743	180	178	-	DQW30-1	108	100	94
8	230	230	102	419	349	270	12-Φ32	442	1055	370	235	365	DZW30	195	160	105
10	250	250	117	508	432	324	16-Φ35	532	1172	370	235	365	DZW30	268	190	130
12	270	270	140	559	489	381	20-Φ35	618	1392	515	245	470	DZW45	376	275	175
14	290	290	155	603	527	413	20-Φ38	674	1475	515	245	470	DZW60	472	355	215
16	310	310	178	666	603	470	20-Φ41	823	1708	540	360	550	DZW90	560	430	254

Pneumatic Butterfly Valve KD64 (6, 7) 1 (2, 3, 4, 5) F (X, H, W, Y)



Main Dimensions											CL150,300	
CL	NPS	L1	L2	L3	D	D1	D2	Z-Ød	H1	H	A	Pneumatic Device
150	8	152	152	64	343	298.5	270	8-Ø22	323	690	275	TAW13
	10	165	165	71	406	362	324	12-Ø25	355	750	275	TAW13
	12	178	178	81	483	432	381	12-Ø25	475	955	378	TAW17
	14	190	190	92	533	476	413	12-Ø29	513	1032	378	TAW17
	16	216	216	102	597	540	470	16-Ø29	598	1182	530	TAW20
	18	222	222	114	635	578	533	16-Ø32	635	1265	530	TAW20
	20	229	229	127	699	635	584	20-Ø32	667	1335	530	TAW20
	24	267	267	154	813	749.5	692	20-Ø35	830	1642	680	TAW28
	28	292	292	229	937	846	794	28-Ø35	910	1782	680	TAW28
300	8	230	230	73	381	330	270	12-Ø25	368	750	275	TAW13
	10	250	250	83	445	387.5	324	16-Ø29	442	909	378	TAW17
	12	270	270	92	521	451	381	16-Ø32	535	1075	530	TAW20
	14	290	290	117	584	514.5	413	20-Ø32	572	1158	530	TAW20
	16	310	310	133	648	571.5	470	20-Ø35	610	1230	530	TAW20
	18	330	330	149	711	628.5	533	24-Ø35	736	1462	680	TAW28
	20	350	350	159	775	686	584	24-Ø35	765	1328	680	TAW28