JFS

BEIJING JOINT FLOW SYSTEM CO.

BUTTERFLY VALVE

TRIPLE ECCENTRIC BUTTERFLY VALVE

Triple Eccentric Butterfly Valve provides a tight shut-off performance. This geometry ensures that the disc seal contacts the body seat only at the final shut-off position without rubbing or galling, providing a torque generated resilient seal with sufficient "wedging" to ensure a uniform seal contact.

Triple Eccentric Butterfly Valve offers an excellent performance for water / waste water and industrial applications.

- In-line replaceable and re-adjustable seat.
- Two replaceable seats (option).
- Manual gear, electric actuator available.

FEATURE

- Triple offset and ellipsoidal sealing geometry.
- Developed geometry results in zero seat / seal friction.
- Low torques.
- Extended service life.
- Excellent flow and throttling characteristics covering services from cryogenic to high temperature.
- Excellent control of fugitive emission by virtue of rotary stem movement and advanced packing materials.

STANDARD

Design and Manufacture	API 609/EN 593/BS 5155
Inspection and Testing	API 598/ISO 5208
Face to Face Dimension	ISO 5752/EN 558/DIN 3202/ASME B16.10
Flange Dimension	ASME B16.5/ASME B16.47/AWWA C207/ISO 7005/EN 1092

*More standard specifications are available on request.

TEST DATA

Nominal Diameter DN (mm)	50-3200	50-3200	50-2000	50-2000	50-1200	2"-60"	2"-48"	2"-24"
Nominal Pressure PN (MPa)	0.6	1.0	1.6	2.5	4.0	150(lb)	300(lb)	600(lb)
Hydraulic Shell Test Pressure (MPa)	0.9	1.5	2.4	3.75	6.0	3.0	7.5	16.5
Hydraulic Seal Test Pressure (MPa)	0.66	1.1	1.76	2.75	4.4	2.2	5.5	11.1
Temperature (℃)	-10~300(DI)			-29~425(CS)			-40~550(SS)	

*More test specifications are available on request.

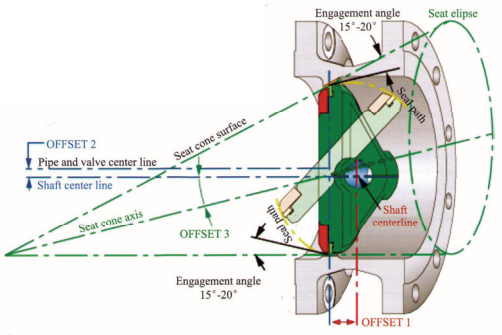
TRIPLE ECCENTRIC BUTTERFLY VALVE

TRIPLE ECCENTRIC DESIGN

Eccentric 1: The shaft is offset behind the seat axis to allow complete sealing contact around the entire seat.

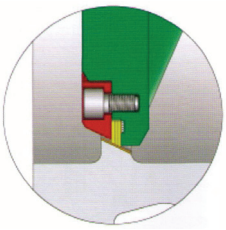
Eccentric 2: The shaft centerline is offset from the pipe and valve which provides interference free opening and closing of the valve.

Eccentric 3: The seat cone axis is offset from the shaft centerline to eliminate friction during closing and opening and to achieve uniform compressive sealing around the entire seat.



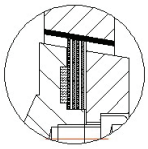
The Laminated Disc Seal

Seating forces are generated by the torque during closing uniformly around the entire circumference. The resilient seal flexes and energizes, assuming the shape of the seat. The compression forces equally distributed around the perimeter provide a tight shut off. The resiliency of the seal allows the valve body and disc to contract or expand, without the risk of jamming due to temperature fluctuations. It is self-adjusting.



Massive Seat Ring (up to +600 ℃)

Massive seat ring is made of solid heat-resistant stainless steel ring. It has precise machined special-shaped edge tightly contacted with stellited body seat, which is easy replaceable.

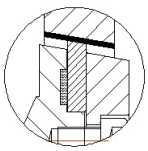


Floating Design of Seat Ring

Laminated or massive seat ring is mounted on the disc and held by a bolted endless retaining ring, but there is no force link among them. Furthermore, it is supported by the flexible gasket of spiral wound stainless steel / graphite.

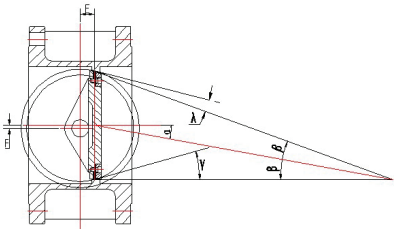
Such a floating design makes the seat ring:

1. Eliminates the rubbing against body seat.
2. Self-compensating for process temperature variances.



Optimum Shut-off Angle β

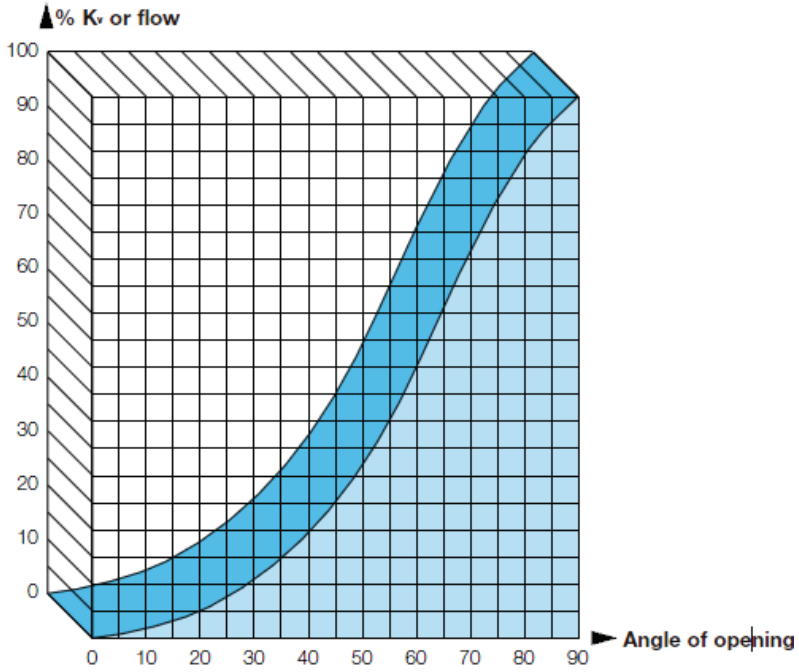
Shut-off angle β is the included angle of the seat tangent and the disc moving orbit tangent on the right side at the valve closed position. The optimum β can both eliminate any jamming during when opening the valve and ensure small shut-off force favorable for automation.



TRIPLE ECCENTRIC BUTTERFLY VALVE

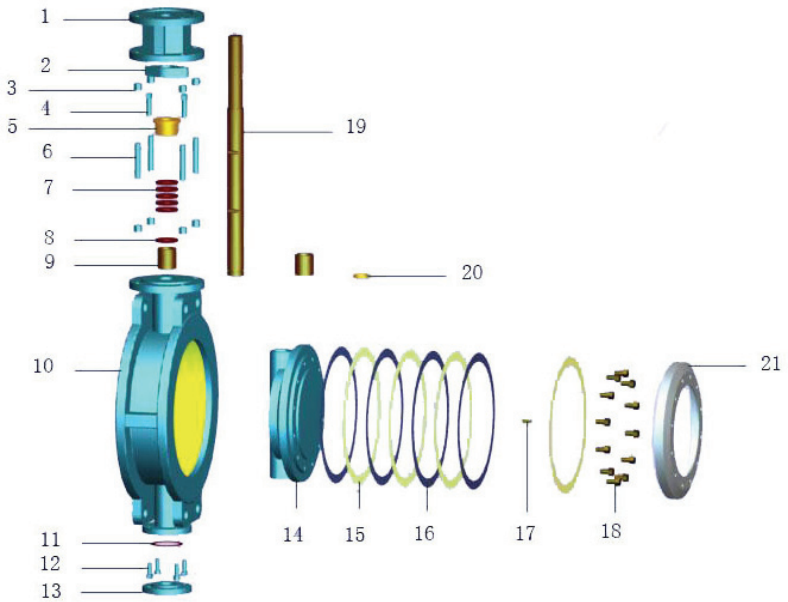
STRUCTURE

The taper bevel shearing triple offset metal seal butterfly valve makes the center line of the seat from a polarization in angle with the central line of the valve bush, based on the double eccentric butterfly valve, which makes the sealing section of the disc immediately brake away from the sealing section of the valve seat at the moment of opening, and contact the sealing section of the valve seat at the moment of closing, during the course of opening and closing, when completely opened, a gap will be formed in the two sealing sections. This kind of design can completely remove the mechanical wear and scratch between two sealing sections, and greatly improve the sealing performance and life-span of the butterfly valve.



TRIPLE ECCENTRIC BUTTERFLY VALVE

PARTS LIST AND MATERIAL

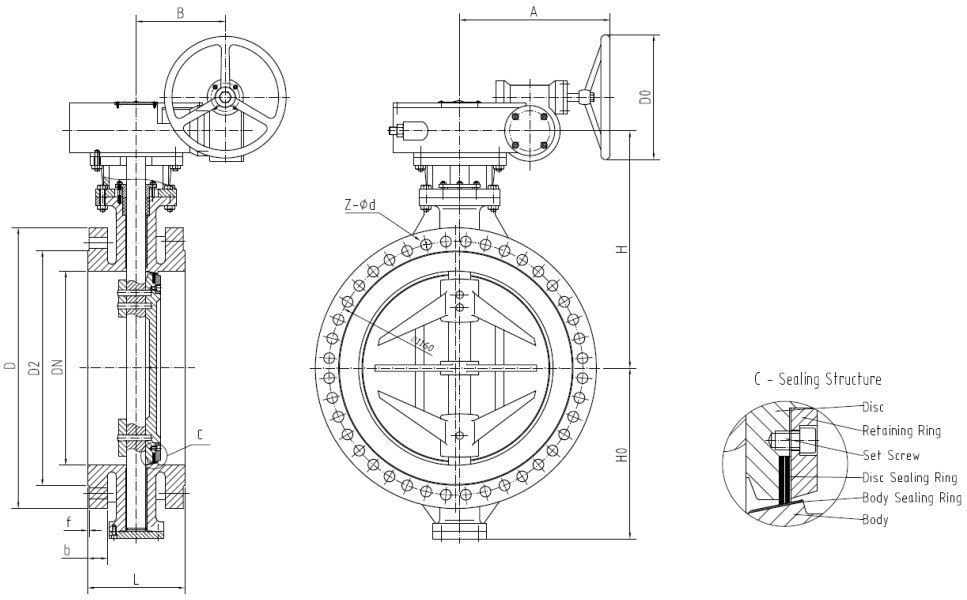


No	Parts Name	Material
1	Adapter	Carbon Steel
2	Plate	Carbon Steel
3	Body Nut	Carbon Steel/Stainless Steel
4	Gland Screw	Carbon Steel/Stainless Steel
5	Bushing	Copper/Bronze
6	Body Screw	Carbon Steel/Stainless Steel
7	Packing	Flexible Graphite
8	Ring	Carbon Steel/Stainless Steel
9	Bearing	Copper/Bronze
10	Body	Ductile Iron/Carbon Steel/Alloy Steel/Stainless Steel
11	Gasket	Stainless Steel+Graphite Spiral Wound Gasket/PTFE
12	Screw	Carbon Steel/Stainless Steel
13	Lower Flange	Ductile Iron/Carbon Steel/Alloy Steel/Stainless Steel
14	Disc	Ductile Iron/Carbon Steel/Alloy Steel/Stainless Steel
15	Body Sealing Ring	Body material Stainless Steel/Overlay Stainless Steel or Hard Alloy/Stainless Steel Ring Inserted
16	Disc Sealing Ring	Laminated Sealing Ring (Stainless Steel+Graphite, Asbestos Sheet or PTFE)/Rubber
17	Pin	Stainless Steel
18	Disc Screw	Carbon Steel/Stainless Steel
19	Stem	Stainless Steel
20	Ring	Carbon Steel/Stainless Steel
21	Retaining Ring	Carbon Steel/Stainless Steel

*More material specifications are available on request.

TRIPLE ECCENTRIC BUTTERFLY VALVE

DIMENSION (Flange Type / DN<1500 / PN<4.0MPa)



DN (mm)	NPS (inch)	L	H_0	H	A	B	D_0	Est. Weight (Kg)
50	2	108	70	235	180	50	150	19
80	3	114	85	250	180	50	150	23
100	4	127	100	260	180	50	150	26
150	6	140	150	310	185	63	250	43
200	8	152	210	380	185	63	250	65
250	10	165	235	395	215	80	250	80
300	12	178	265	425	215	80	250	100
350	14	190	300	480	215	80	350	150
400	16	216	355	535	245	125	350	210
450	18	222	380	570	245	125	350	266
500	20	229	395	590	245	125	350	310
600	24	267	450	675	390	242	400	426
700	28	292	520	770	390	242	400	590
800	32	318	590	840	420	262	400	780
900	36	330	660	915	420	262	400	946
1000	40	410	730	1050	550	325	500	1190
1200	48	470	870	1190	550	325	500	1710
1400	56	530	1015	1350	600	362	500	2750

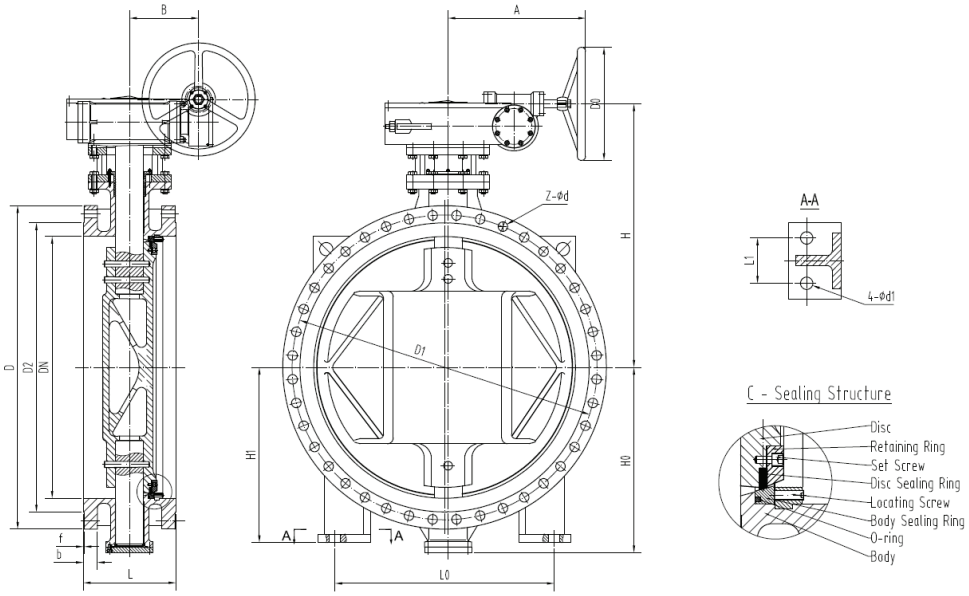
*Face to face dimensions (L) herein are according to EN 558/ISO 5752 series 13.

*Flange dimensions (D, D_1, D_2, Z-d, b, f) refer to Catalogue of Accessory: Series 8 – Flange.

*More dimension specifications are available on request.

TRIPLE ECCENTRIC BUTTERFLY VALVE

DIMENSION (Flange Type / DN>1500 / PN<4.0MPa)



DN (mm)	NPS (inch)	L	H_0	H	A	B	D_0	H_1	L_0	L_1	d_1	Est. Weight (kg)
1600	64	600	1100	1430	690	395	650	1000	1000	180	41	3150
1800	72	670	1250	1590	690	395	650	1100	1100	190	41	4491
2000	80	760	1370	1720	780	580	650	1200	1200	240	43	6154
2200	88	800	1500	1850	780	580	650	1300	2200	330	43	8031
2400	96	850	1630	1980	780	580	650	1360	2400	330	45	10046
2600	104	900	1760	2130	865	620	650	1500	2600	350	45	11910
2800	112	950	1900	2230	865	620	650	1610	2800	400	48	14400
3000	120	1000	2030	2370	865	620	650	1690	3000	470	48	15420
3200	128	1100	2170	2560	865	620	650	1850	3200	500	52	18210

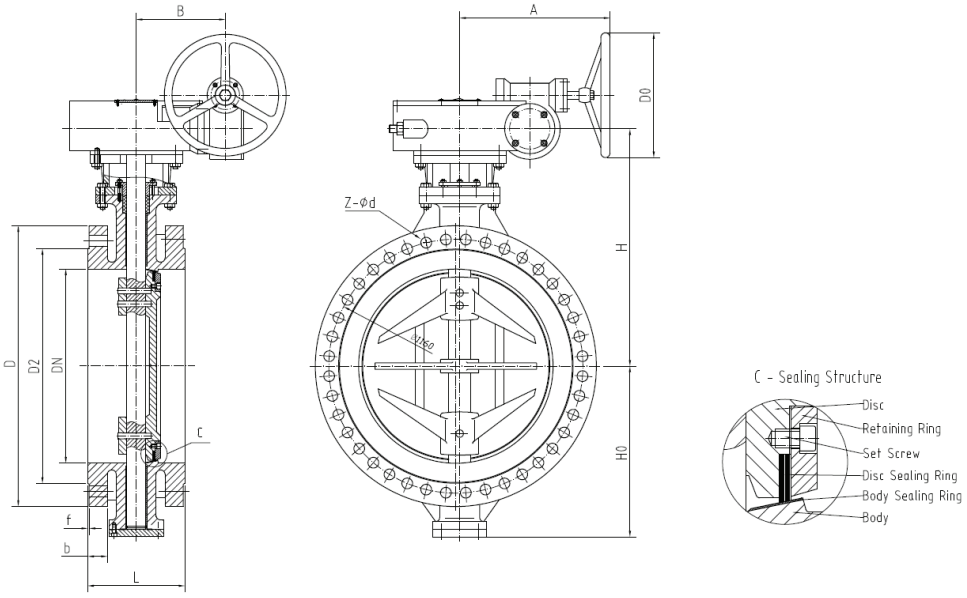
*Face to face dimensions (L) herein are according to EN 558/ISO 5752 series 13.

*Flange dimensions (D, D_1, D_2, Z-d, b, f) refer to Catalogue of Accessory: Series 8 – Flange.

*More dimension specifications are available on request.

TRIPLE ECCENTRIC BUTTERFLY VALVE

DIMENSION (Flange Type / PN≥4.0 MPa)



DN (mm)	NPS (inch)	L	H_0	H	A	B	D_0
50	2	150	80	250	180	50	150
80	3	180	95	26	180	50	150
100	4	190	115	275	180	50	150
150	6	210	165	330	185	63	250
200	8	230	225	395	215	80	305
250	10	250	250	410	215	80	305
300	12	270	285	450	215	80	400
350	14	290	330	510	245	125	300
400	16	310	390	570	245	125	300
450	18	330	415	410	245	125	300
500	20	350	430	625	390	242	400
600	24	390	485	710	390	242	400
700	28	430	535	810	390	242	400
800	32	470	630	890	420	242	400
900	36	510	700	948	590	320	500
1000	40	550	770	1120	590	320	500

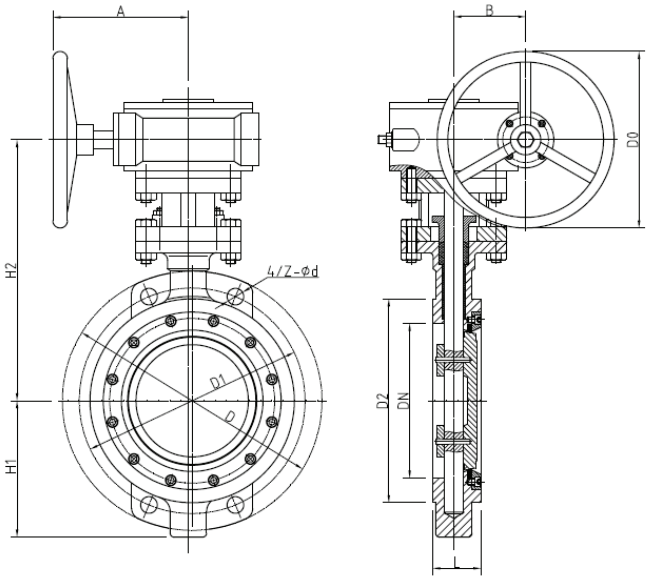
*Face to face dimensions (L) herein are according to EN 558/ISO 5752 series 14.

*Flange dimensions (D, D_1, D_2, Z-d, b, f) refer to Catalogue of Accessory: Series 8 – Flange.

*More dimension specifications are available on request.

TRIPLE ECCENTRIC BUTTERFLY VALVE

DIMENSION (Wafer Type / PN<4.0MPa)



DN	NPS	L	H_1	H_2	A	B	D_0	Est. Weight (Kg)
50	2	43	70	235	180	50	150	11
80	3	64	85	250	180	50	150	15
100	4	64	100	260	180	50	150	18
150	6	76	150	310	185	63	250	25
200	8	89	210	380	185	63	250	38
250	10	114	235	395	215	80	250	60
300	12	114	265	425	215	80	250	76
350	14	127	300	480	215	80	350	92
400	16	140	355	535	245	125	350	102
450	18	152	380	570	245	125	350	135
500	20	152	395	590	245	125	350	180
600	24	154	450	675	390	242	400	280
700	28	165	520	770	390	242	400	369
800	32	190	590	840	420	262	400	570
900	36	203	660	915	420	262	400	750
1000	40	216	730	1050	550	325	500	930
1200	48	254	870	1190	550	325	500	1183
1400	56	279	1015	1350	600	362	500	1415

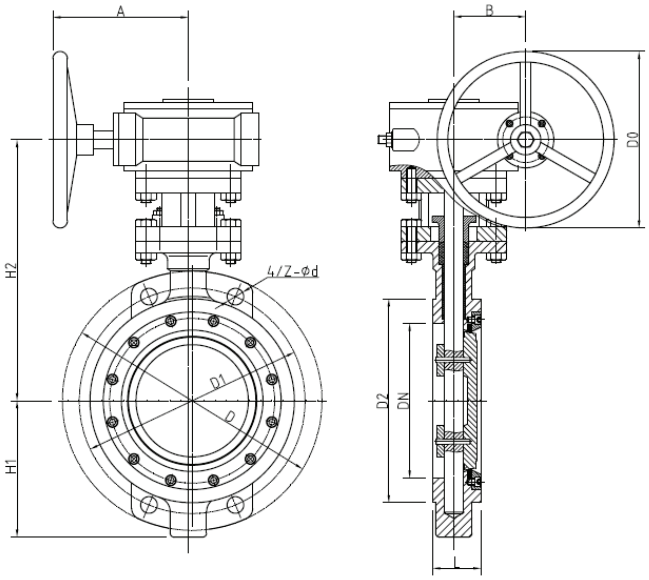
*Face to face dimensions (L) herein are according to ISO 5752 series 16 (DN≦500) and series 20 (DN>500).

*Flange dimensions (D, D_1, D_2, Z-d) refer to Catalogue of Accessory: Series 8 – Flange.

*More dimension specifications are available on request.

TRIPLE ECCENTRIC BUTTERFLY VALVE

DIMENSION (Wafer Type / PN≥4.0 MPa)



DN	NPS	L		H_1	H_2	A	B	D_0
		4.0/6.4 MPa	10.0 MPa					
80	3	48	54	95	26	180	50	150
100	4	54	64	115	275	180	50	150
150	6	59	78	165	330	185	63	250
200	8	73	102	225	395	215	80	305
250	10	83	117	250	410	215	80	305
300	12	92	140	285	450	215	80	400
350	14	117	155	330	510	245	125	300
400	16	133	178	390	570	245	125	300
450	18	149	200	415	410	245	125	300
500	20	159	216	430	625	390	242	400
600	24	181	232	485	710	390	242	400

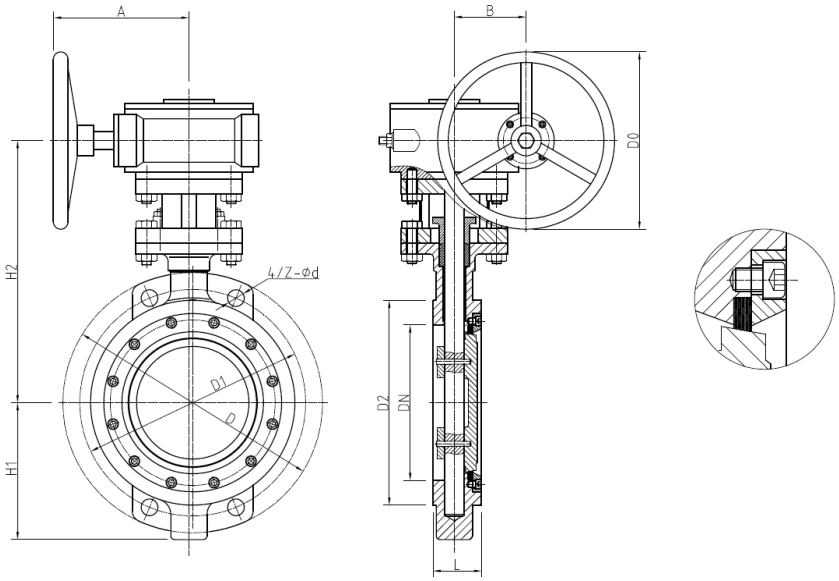
*Face to face dimensions (L) herein are according to ASME B16.10.

*Flange dimensions (D, D_1, D_2, Z-d) refer to Catalogue of Accessory: Series 8 – Flange.

*More dimension specifications are available on request.

TRIPLE ECCENTRIC BUTTERFLY VALVE

DIMENSION (High Performance / Wafer type)



DN	NPS	L (150lb)	L (300lb)	L (600lb)	H_0	H	A	B	D_0	Est. Weight (kg)
50	2	43	43		65	180	180	50	150	8
80	3	48	48	54	85	205	180	50	150	14
100	4	54	54	64	95	235	180	50	150	17
150	6	57	59	78	125	275	185	63	305	26
200	8	64	73	102	145	305	185	63	305	35
250	10	71	83	117	200	350	215	80	305	42
300	12	81	92	140	215	400	215	80	406	68
350	14	92	117	155	255	460	215	80	406	121
400	16	102	133	178	315	475	245	125	300	136
450	18	114	149	200	381	550	245	125	300	198
500	20	127	159	216	420	600	245	125	300	216
600	24	154	181	232	489	680	390	242	400	467
700	28	165			502	815	390	242	500	650
800	32	190			975	920	420	262	400	950
900	36	203			1075	1020	420	262	400	1239
1000	40	216			1175	1120	550	325	500	1785
1200	48	254			1405	1340	550	325	500	1956

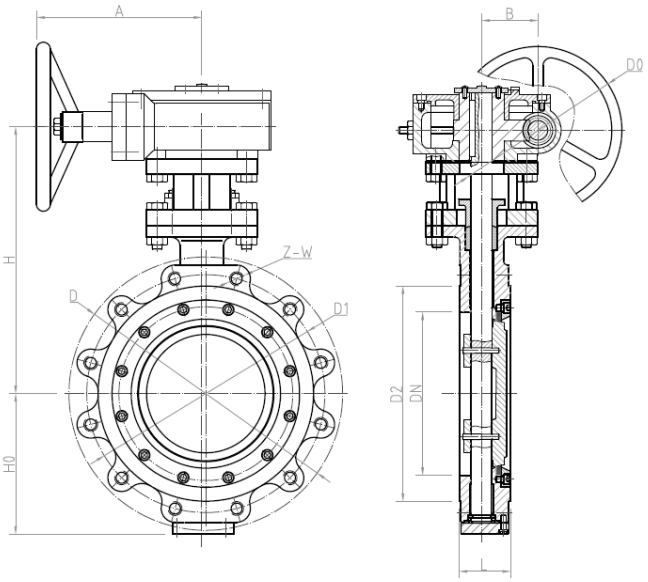
*Face to face dimensions (L) herein are according to ASME B16.10.

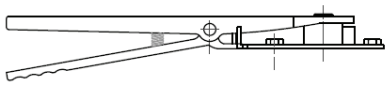
*Flange dimensions (D, D_1, D_2, Z-d) refer to Catalogue of Accessory: Series 8 – Flange.

*More dimension specifications are available on request.

TRIPLE ECCENTRIC BUTTERFLY VALVE

DIMENSION (High Performance / Lug type)





for Diameter under NPS 8" (DN200)

DN	NPS	L (150lb)	L (300lb)	L (600lb)	H_0	H	A	B	D_0	Est. Weight (kg)
50	2	43	43		65	180	180	50	150	20
80	3	48	48	54	85	205	180	50	150	30
100	4	54	54	64	95	235	180	50	150	38
150	6	57	59	78	125	275	185	63	305	48
200	8	64	73	102	145	305	185	63	305	90
250	10	71	83	117	200	350	215	80	305	114
300	12	81	92	140	215	400	215	80	406	148
350	14	92	117	155	255	460	215	80	406	183
400	16	102	133	178	315	475	245	125	300	215
450	18	114	149	200	381	550	245	125	300	266
500	20	127	159	216	420	600	245	125	300	337
600	24	154	181	232	489	680	390	242	400	511
700	28	165			502	815	390	242	500	905
800	32	190			975	920	420	262	400	1221
900	36	203			1075	1020	420	262	400	1576
1000	40	216			1175	1120	550	325	500	2090
1200	48	254			1405	1340	550	325	500	2227

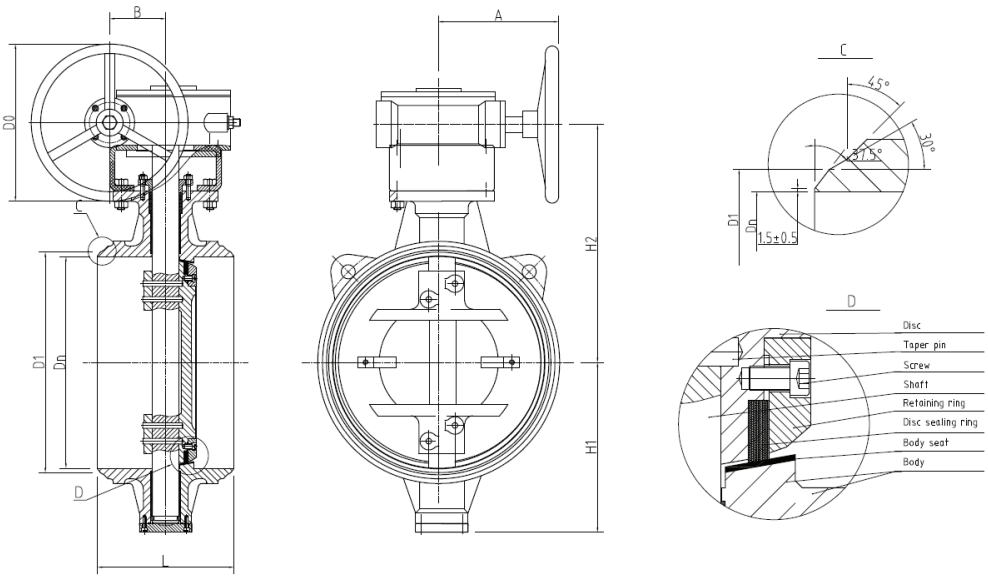
*Face to face dimensions (L) herein are according to ASME B16.10.

*Flange dimensions (D, D_1, D_2, Z-d) refer to Catalogue of Accessory: Series 8 – Flange.

*More dimension specifications are available on request.

TRIPLE ECCENTRIC BUTTERFLY VALVE

DIMENSION (Butt Weld type / DN<1500)



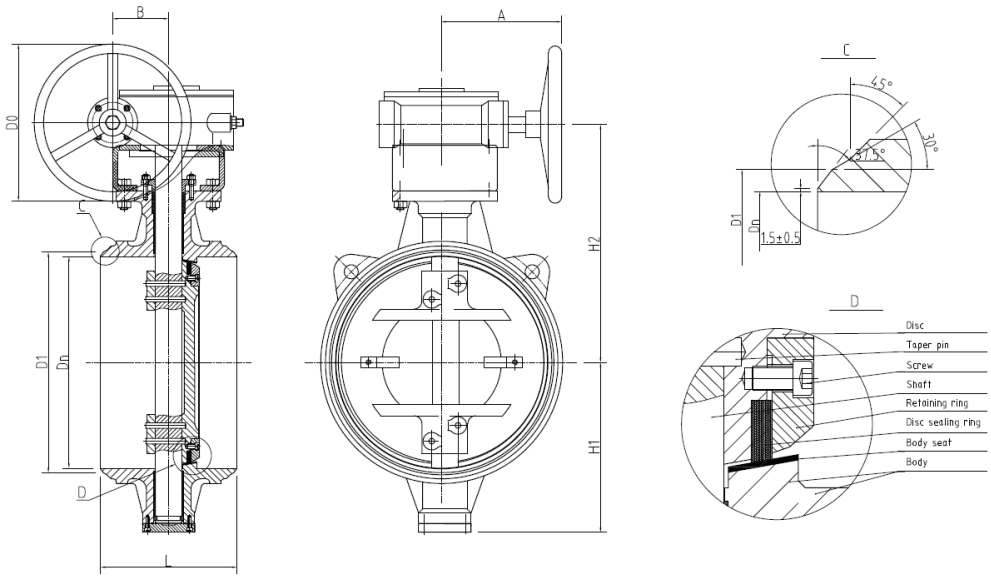
DN	NPS	L	D_1	D_n	H_1	H_2	A	B	D_0	Est. Weight (kg)
80	3	180	92	85	90	186	180	50	150	27
100	4	190	114	105	100	217	180	50	150	32
125	5	200	138	130	113	233	180	50	150	39
150	6	210	159	152	150	307	185	63	250	40
200	8	230	219	207	200	341	185	63	250	77
250	10	250	274	258	231	390	215	80	250	96
300	12	270	325	313	261	433	215	80	250	125
350	14	290	377	365	298	470	215	80	350	155
400	16	310	426	414	331	533	245	125	350	183
450	18	330	478	466	369	564	245	125	350	226
500	20	350	529	517	404	598	245	125	350	286
600	24	390	630	614	473	702	390	242	400	434
700	28	430	720	702	538	764	390	242	400	769
800	32	470	820	802	615	836	420	262	400	1038
900	36	510	920	902	700	948	420	262	400	1339
1000	40	550	1020	1002	720	971	550	325	500	1776
1200	48	630	1220	1200	950	1094	550	325	500	1977
1400	56	710	1420	1400	965	1197	600	362	500	2182

*Face to face dimensions (L) herein are according to EN 558/ISO 5752 series 14.

*More dimension specifications are available on request.

TRIPLE ECCENTRIC BUTTERFLY VALVE

DIMENSION (Butt Weld type / DN>1500)



DN	NPS	L	D_1	D_n	H_1	H_2	A	B	D_0	Est. Weight (kg)
1600	64	790	1620	1600	1100	1430	690	395	500	3204
1800	72	870	1820	1800	1250	1590	690	395	650	4090
2000	80	950	2020	2000	1370	1720	780	580	650	5607
2200	88	1000	2220	2200	1500	1850	780	580	650	7459
2400	96	1100	2420	2400	1630	1980	780	580	650	9532
2600	104	1200	2620	2600	1760	2130	865	620	650	10854
2800	112	1300	2820	2800	1900	2230	865	620	650	13698
3000	120	1400	3320	3000	2030	2370	865	620	650	14725

*Face to face dimensions (L) herein are according to EN 558/ISO 5752 series 14.

*More dimension specifications are available on request.