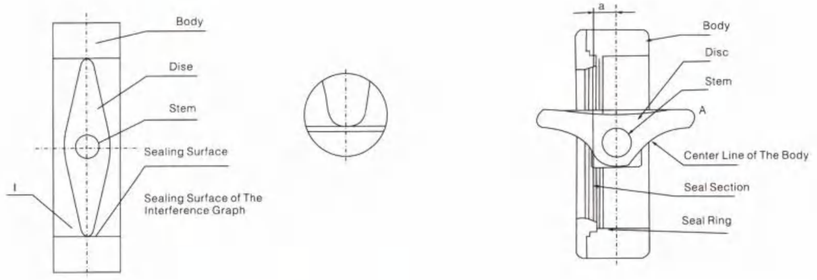
Butterly Valve Sealing Principle

Our butterfly valves are structured to centerline seal.single eccentric seal.double eccentric seal. triple eccentric seal and variable eccentric sealing.The seal principles of these structures are stated as following:

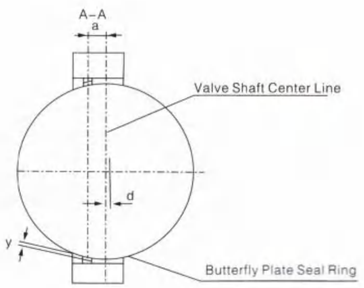
Sealing Principle of Centerline Seal Butterly Valve

With the disc seal center of butterfly valve and rotation center of stem overlapped, sealing load will be produced between the sealing faces of seat and disc under certain magnitude of interference, thus to ensure effective seal of valve. Lined with rubber on the body, this structure is applicable for medium and small–bore butterfly valves. Due to the deformation under extrusion, during the process of opening and closing, disc is always under extrusion. So, the upper and lower valve shafts are seriously extruded, which can be bad to the service life of valve. And the open–close moment of valve is relatively high. The defect is that disc and seat are always under extrusion, scratch and to ensure the good seal, seat basically uses rubber or PTFE, or other elastic materials. However, the temperature can be the problem. That it why it is sajd that butterfly valves are conventionally, not resistant to high temperature.



Sealing Principle of Single Eccentric Seal Butterly Valve

Because of the rotation center of the disc (i.e. valve shaft center) and the butterfly plate sealing section is designed according to a eccentric. making the valve in the opening process, the disc sealing surface gradually separates from the valve seat sealing surface, once the butterfly plate rotates t0 15° –25° degrees, the disc sealing surface separates com pletely from the valve seat seal once fully open, it froms a gap between the two sealing surface, so that the valve in the opening and closing process, the relative mechanical wear and extrusion between the sealing surface is greatly reduced, so as to ensure the sealing of butterfly valve. However as the scratch between the disc and seat doesn't disappear during the whole process of openand close.they are almost similar to concentric butterfly valves in the of application,this is why they have not been popularly used.



Single Eccentric Butterfly Valve Sealing Structure

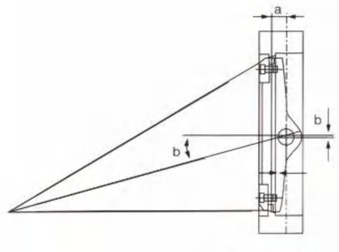
Butterly Valve Sealing Principle

A*p*eccentric is formed up between the centerline of seat and the centerline of body on the basis of dou ble eccentric butterfly valve, making disc sealing face immdiately disengaged from seat sealing face upon the opening or closing of butterfly valve, and in close contact with the seat sealing face upon closing. When fully opened, a gap "Y", which is same as that in dou ble eccentric sealing butterfly valve, is formed upon the two sealing faces. This type design of butterfly valves has

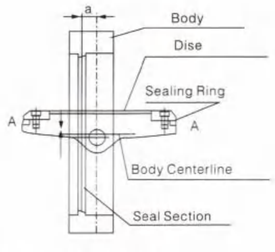
thoroughly eliminated the mechanical wear and scratch between the two sealing faces, making the sealing performance and service life of butterfly valves greatly improved. When the valve Is closed, with sealing ring under the extrusion of body sealing face and disc, two upwards elastic deformations are produced . The sealing face is fallen under outward tension at long shaft and inward compressive stress at short shaft. The long and short shafts produce elastic deformation of different

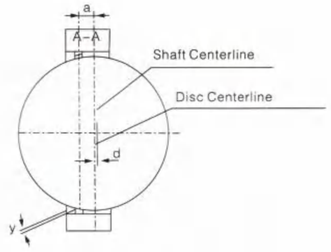
directions, thus to maximize the sealing force between the sealing faces of valves.

This distinctive eccentric combination not only uses cam effect, but also eliminates friction completely. thus to ensure no friction between seat and sealing ring on disc during 90° stroke.



Triple Eccentric Butterfly Valve Closed State Diagram



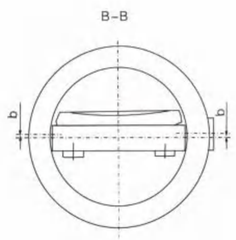


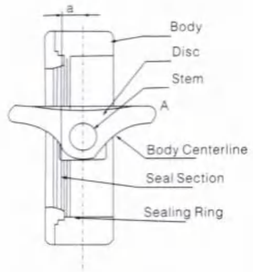
Triple Eccentric Butterfly Valve Opening Diagram

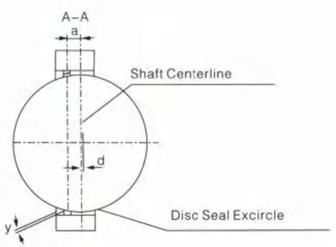
Triple Eccentric Butterfly Valve Sealing Pair Structure

The Sealing Principle of Variable Eccentric Sealing

The distinctive feature of variable eccentric butterfly valve is that the shaft where disc is mounted with is a three–segment eccentric shaft. The two ends of the three–segment shaft are concentric . while the centerline of the miaalo segment is deviated from the axial lines of the two ends by a center–to center distance. Disc is just mounted on the middle segment. This eccentric structure forms up a double eccentric shape when disc is completely opened, and a single eccentric shape when disc is turned to be closed. Under the force of eccentric shaft,when tending to be closed， disc will move somewhat toward the conical sealing surface of the seat, and then engaged to perform dependable sealing. When seat sealing face is abraded after a period of service, adjust the driving mechanism to make the close position of disc forward for some degrees, in this way to set up a new sealing state.







Double Eccentric Butterfly Valve Seal Pair Structure

Butterly Valve Structure Characteristic

The butterfly valve is used to open and close the medium circulation or regulate the medium flow in the pipeline

The Main Structure Features

1 .Simple structure, small volume, light weight and small size for installation. According to the connection type, there are three kinds of basic connection:wafer type (including lug wafer type) , flange type and butt welding type.

2. The sealing structure has three kinds including multi-layer metal sealed, wholly metal Metal Sealed and the elastic Metal Sealed, used for a variety of differentconditions, with good sealing performance and long service life.

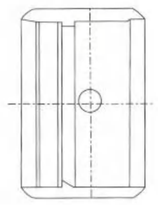
1) Multi-layer metal sealed and the wholly metal sealed (see below picture and the right above picture), all adopt triple eccentric and conical sealing structure,which makes the sealing pair with more tightening function, and can effectively remove scaling on the seat, the design of large cone angle can withstand 600℃ high temperature. The series of butterfly valve pressure rates up to CLASS600.

2) Flexible metal seal structure (see above pictu re) adopts J type metal seal structure, which is suitable for double eccentric butterfly valve, pressure rating <CLASS300 and characterized by excellent sealing, long service life, easy processing and manufacturing.

3)All the sealing parts of this series butterfly valve are used with fire protection design, ensuring the sealing performance of each position even after the fire.

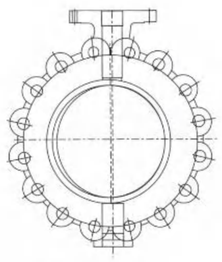
4) Small flow resistance as the butterfly valve in the fully open condition, sensiti've control of the flow as valve in partially open condition.

法兰连接形式
Flange Connection Type



对接焊连接形式
Butt Welding Connection Type

对夹连接形式
Wafer Connection Type



凸耳对夹连接形式
Lug Wafer Connection Type

1)Soft Sealing Structure (See Bellow Picture)

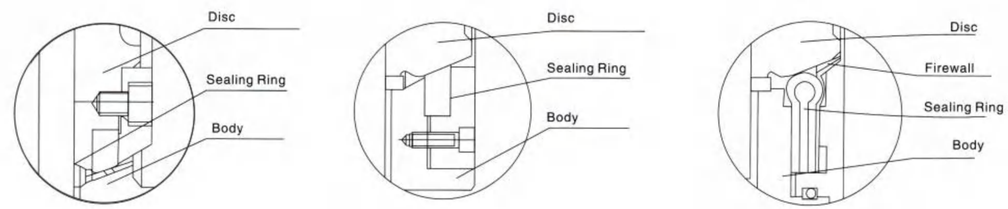
It is applicable for single and dou ble eccentric butterfly valve, the pressure rating ≤CLASS 600. (Centerline sealing tructure applied to pressure sCLASS 250).seal material (PTFE) placed on the body has the following characteristics:

A) Don't require additional sealing ring or metal support ring, with reliably sealed.

B) Maintaining bi-directional sealing with zero leakage

C) Less repair, long service life.

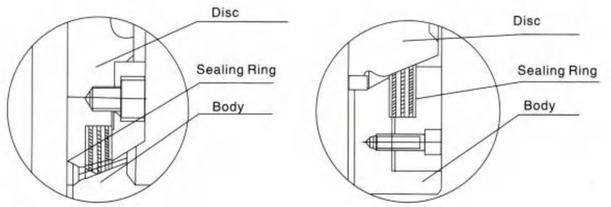
Butterly Valve Structure Characteristic



Soft Sealing Structure

2)The Multi-Layer MetalSealed Structure (See Bellow Picture)

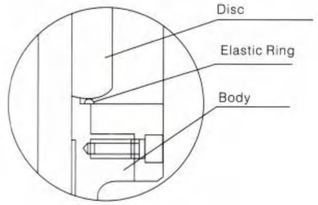
Multi-layer metal sealed structure, is suitable for single eccentric butte rfly valves, double eccentric butterfly valves and triple eccentric butterfly valves, with pressure rating ≤CLASS600. Besides, triple eccentric butterfly valves can be bi-directional zero leakage. The multilayer sealing ring can be made of stainless steel and non-metal material, which non-metal material can be flexible graphite, PTFE or non asbestos materials etc.



Multi-layer Metal Sealed Structure

3)Elastic Ring MetalSealed Structure

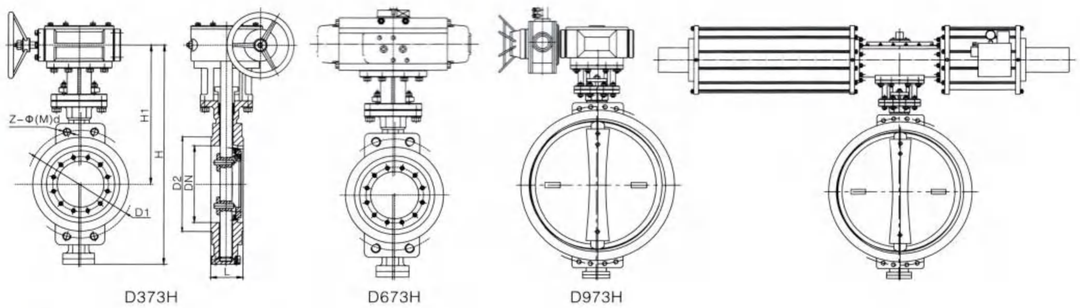
Using J type metal sealed structure, is suitable for single eccentric butterfly valve and double eccentric butterfly valve, the pressure class rating <CLASS300.This structure has fireproof structure, can be suitable for large temperature changes, with excellent sealing performance, long service life, easy for processing and manufacturing.



Elastic Ring Metal Sealed Structure

D3/6/973H

ASME Wafer Butterly Valve



D373H D673H D973H

Performance specifcation

PN (MPa)	Test Pressure (MPa)			Applicable Temperature	Applicable Medium
	Shell Test	High Pressure Seal	Low Pressure Seal		
CLASS150	2.93	2.07	0.6	-29~425℃	Water,Steam, Oil, Seawater.
CLASS300	7.58	5.52	0.6		
CLASS600	15.0	11.03	0.6		
CLASS900	24.0	17.6	0.6		

Materials of main parts

Parts Name	Material
Body	WCB、304、316、316SS、CF8M
Disc	WCB、304、316、316SS、CF8M
Stem	316、2Cr13、1Cr18Ni9Ti
Sealing Ring	31 6、Fluorine Plastic
Packing	Flexible Graphite. Fluorine Plastic

D3/6/973H

ASME Wafer Butterly Valve

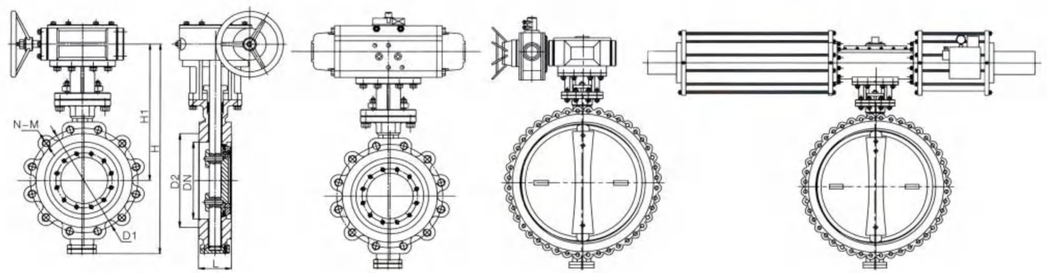
Main shape size and connection size

ASME16.5 ASME16.47B Size: mm

DN		150Lb						300Lb					
Inch	mm	L	H	H1	D1	D2	N-Φ(M)d	L	H	H1	D1	D2	N-Φ(M)d
2	50	43	300	210	120.5	92	4-19	43	330	230	127	92	4-19
3	80	49	340	230	152.5	127	4-19	49	420	270	168.5	127	4-22
4	100	54	400	265	190.5	157	4-19	54	490	305	200	157	4-22
5	125	57	480	325	216	186	4-22	57	530	345	235	186	4-22
6	150	58	530	345	241.5	216	4-22	61	590	380	270	216	4-(3/4)
8	200	64	620	395	298.5	270	4-22	73	650	410	330	270	4-(7/8)
10	250	71	680	425	362	324	4-25	83	750	470	387.5	324	4-(1)
12	300	81	800	495	432	381	4-25	92	860	545	451	381	4-(1 1/8)
14	350	92	880	555	476	413	4-29	117	940	590	514.5	413	4-(1 1/8)
16	400	102	950	590	540	470	4-(1)	133	990	640	571.5	470	4-(1 1/4)
18	450	114	1000	630	578	533	4-(1 1/8)	149	1100	690	628.5	533	4-(1 1/4)
20	500	127	1110	700	635	584	4-(1 1/8)	159	1200	740	686	584	4-(1 1/4)
24	600	154	1230	750	749.5	692	4-(1 1/4)	181	1360	850	813	692	4-(1 1/2)
28	700	165	1350	810	795.3	762	8-(3/4)	229	1430	870	857.2	787	4-(1 1/4)
32	800	190	1390	840	900.1	864	8-(3/4)	254	1570	950	977.9	902	4-(1 1/2)
36	900	203	1660	1000	1009.6	972	8-(7/8)	254	1750	1110	1089	1010	4-(1 5/8)
40	1000	216	1720	1080	1120.8	1080	8-(1)	300	1980	1200	1190.6	1114	4-(1 5/8)
48	1200	254	2080	1250	1335.1	1289	8-(1 1/8)	360	2130	1270	1416	1327	4-(1 7/8)
DN		600Lb						900Lb					
Inch	mm	L	H	H1	D1	D2	N-Φ(M)d	L	H	H1	D1	D2	N-Φ(M)d
2	50	43	355	230	127	92	4-(5/8)	-	-	-	-	-	-
3	80	54	480	290	168.3	127	4-(3/4)	-	-	-	-	-	-
4	100	64	510	320	215.9	157	4-(7/8)	-	-	-	-	-	-
5	125	76	590	380	266.7	186	4-(1)	-	-	-	-	-	-
6	150	78	620	400	292.1	216	4-(1)	104	760	460	317.5	216	4-(1 1/8)
8	200	102	730	460	349.2	270	4-(1 1/8)	112	850	530	393.7	270	4-(1 3/8)
10	250	117	870	550	431.8	324	4-(1 1/4)	135	980	635	469.9	324	4-(1 3/8)
12	300	140	930	600	489	381	4-(1 1/4)	170	1050	690	533.4	381	4-(1 3/8)
14	350	155	1005	630	527	413	4-(1 3/8)	173	1130	720	558.8	413	4-(1 1/2)
16	400	178	1135	705	603.2	470	4-(1 1/2)	210	1195	740	616	470	4-(1 5/8)
18	450	200	1200	750	654	533	4-(1 5/8)	228	1340	840	685.8	533	4-(1 7/8)
20	500	216	1270	780	723.9	584	4-(1 5/8)	250	1410	865	749.3	584	4-(2)
24	600	232	1440	880	838.2	692	4-(1 7/8)	275	1645	990	901.7	692	4-(2 1/2)

KDA3/6/971X

ASME Lug Butterly Valve



D371H D671H D971H

Performance specifcation

PN (MPa)	Test Pressure (MPa)			Applicable Temperature	Applicable Medium
	Shell Test	High Pressure Seal	Low Pressure Seal		
CLASS150	2.93	2.07	0.6	-29~425℃	Water,Steam, Oil, Seawater.
CLASS300	7.58	5.52	0.6		
CLASS600	15.0	11.03	0.6		

Materials of main parts

Parts Name	Material
Body	WCB、304、316、316SS、CF8M
Disc	WCB、304、316、316SS、CF8M
Stem	316、2Cr13、1Cr18Ni9Ti
Sealing Ring	31 6、Fluorine Plastic
Packing	Flexible Graphite. Fluorine Plastic

KDA3/6/971X

ASME Lug Butterly Valve

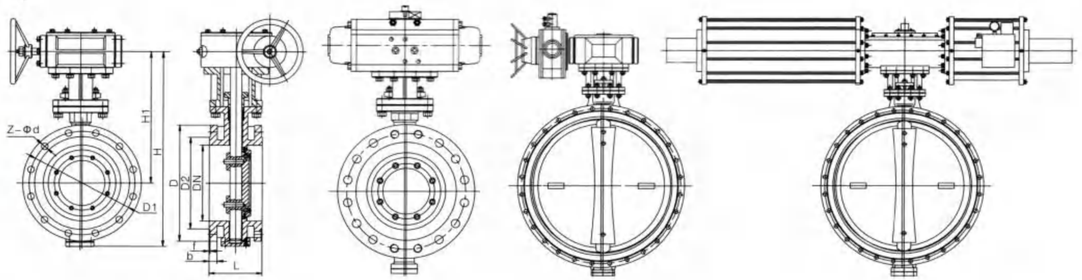
Main shape size and connection size

ASME16.5 ASME16.47B Size: mm

DN		150Lb						300Lb					
Inch	mm	L	H	H1	D1	D2	N–M	L	H	H1	D1	D2	N–M
2	50	43	300	210	120.5	92	4–(5/8)	43	330	230	127	92	8–(5/8)
3	80	49	340	230	152.5	127	4–(5/8)	49	420	270	168.5	127	8–(3/4)
4	100	54	400	265	190.5	157	8–(5/8)	54	490	305	200	157	8–(3/4)
5	125	57	480	325	216	186	8–(3/4)	57	530	345	235	186	8–(3/4)
6	150	58	530	345	241.5	216	8–(3/4)	61	590	380	270	216	12–(3/4)
8	200	64	620	395	298.5	270	8–(3/4)	73	650	410	330	270	12–(7/8)
10	250	71	680	425	362	324	12–(7/8)	83	750	470	387.5	324	16–(1)
12	300	81	800	495	432	381	12–(7/8)	92	860	545	451	381	16–(1 1/8)
14	350	92	880	555	476	413	12–(1)	117	940	590	514.5	413	20–(1 1/8)
16	400	102	950	590	540	470	16–(1)	133	990	640	571.5	470	20–(1 1/4)
18	450	114	1000	630	578	533	16–(1 1/8)	149	1100	690	628.5	533	24–(1 1/4)
20	500	127	1110	700	635	584	20–(1 1/8)	159	1200	740	686	584	24–(1 1/4)
24	600	154	1230	750	749.5	692	20–(1 1/4)	181	1360	850	813	692	24–(1 1/2)
28	700	165	1350	810	795.3	762	40–(3/4)	229	1430	870	857.2	787	36–(1 1/4)
32	800	190	1390	840	900.1	864	48–(3/4)	254	1570	950	977.9	902	32–(1 1/2)
36	900	203	1660	1000	1009.6	972	44–(7/8)	254	1750	1110	1089	1010	32–(1 5/8)
40	1000	216	1720	1080	1120.8	1080	44–(1)	300	1980	1200	1190.6	1114	40–(1 5/8)
48	1200	254	2080	1250	1335.1	1289	44–(1 1/8)	360	2130	1270	1416	1327	40–(1 7/8)
DN		600Lb						900Lb					
Inch	mm	L	H	H1	D1	D2	N–M	L	H	H1	D1	D2	N–M
6	150	78	620	400	292.1	216	12–(1)	104	760	460	317.5	216	12–(1 1/8)
8	200	102	730	460	349.2	270	12–(1 1/8)	112	850	530	393.7	270	12–(1 3/8)
10	250	117	870	550	431.8	324	16–(1 1/4)	135	980	635	469.9	324	16–(1 3/8)
12	300	140	930	600	489	381	20–(1 1/4)	170	1050	690	533.4	381	20–(1 3/8)
14	350	155	1005	630	527	413	20–(1 3/8)	173	1130	720	558.8	413	20–(1 1/2)
16	400	178	1135	705	603.2	470	20–(1 1/2)	210	1195	740	616	470	20–(1 5/8)
18	450	200	1200	750	654	533	20–(1 5/8)	228	1340	840	685.8	533	20–(1 7/8)
20	500	216	1270	780	723.9	584	24–(1 5/8)	250	1410	865	749.3	584	20–(2)
24	600	232	1440	880	838.2	692	24–(1 7/8)	275	1645	990	901.7	692	20–(2 1/2)

D3/6/941H

ASME Flange Butterly Valve



D341H D641H D941H

Performance standard

Design Standard		API 609		
Flange Connection Dimension		Size≤24" according to ANSI B16.5,Size>24" according to ANSI B16.47 Series B		
Test and Inspection		API 598		
Temperature and Pressure Level		ASEM B16.34		
Face to Face Dimension	Short Structure	AP1609.ISO5752 basic series 13		
	Long Structure	ASME B16.10		
Fire Safe		API 607		
Pressure Ratina		150LB	300LB	600LB
Test Pressure at Room Temperature (Mpa)	Shell Test	2.93	7.58	15.0
	High Pressure Seal	2.07	5.52	11.03
	Low Pressure Seal	0.6	0.6	0.6
Applicable Medium		Water, Oil, Gas and Other Corrosive Media (Different Media Use Different Materials)		
Applicable Temperature		(Different Temperature Conditions Use Diffe rent Materials)		

Materials of main parts

Parts Name	Material
Body	Cast iron, Stainless steel, Cr.Mo.Steel,alloy steel
Disc	Cast steel, Alloy steel,Stainless steel, Cr.Mo.Steel
Sealing Ring	Stainless steel and temperature resistant asbestos composed of multiple layers
Stem	2Cr13、1Cr13、Stainless steel,Cr.Mo.Steel
Bearing	ZG00CrNil0，304 nitrification
Packing	Flexible Graphite

D3/6/941H

ASME Flange Butterly Valve

Main shape size and connection size

ASME16.5 ASME16.47B Size: mm

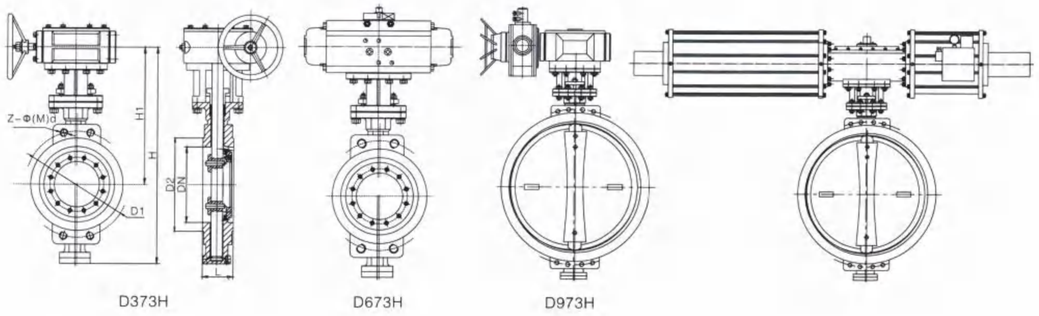
DN		150Lb								300Lb							
Inch	mm	L	H	H1	D	D1	D2	Z-Φd	bxf	L	H	H1	D	D1	D2	Z-Φd	bxf
2	50	108	300	210	150	120.5	92	4-19	18x2	108	385	240	165	127	92	8-19	23x2
2 1/2	65	112	320	220	180	139.5	105	4-19	20x2	112	400	250	190	149	105	8-22	26x2
3	80	114	340	230	190	152.5	127	4-19	22x2	114	410	260	210	168.5	127	8-22	29x2
4	100	127	400	265	230	190.5	157	8-19	24x2	127	420	270	255	200	157	8-22	32x2
5	125	140	480	325	255	216	186	8-22	24x2	140	530	345	280	235	186	8-22	35x2
6	150	140	530	345	280	241.5	216	8-22	26x2	140	590	380	320	270	216	12-22	37x2
8	200	152	620	395	345	298.5	270	8-22	29x2	152	650	410	380	330	270	12-26	42x2
10	250	165	680	425	405	362	324	12-25	31x2	165	750	470	445	387.5	324	16-29	48x2
12	300	178	800	495	485	432	381	12-25	32x2	178	860	545	520	451	381	16-32	51x2
14	350	190	880	555	535	476	413	12-29	35x2	190	940	590	585	514.5	413	20-32	54x2
16	400	216	950	590	595	540	470	16-29	37x2	216	990	640	650	571.5	470	20-35	58x2
18	450	222	1000	630	635	578	533	16-32	40x2	222	1100	690	710	628.5	533	24-35	61x2
20	500	229	1100	680	700	635	584	20-32	43x2	229	1200	740	755	686	584	24-35	64x2
24	600	267	1230	750	815	749.5	692	20-35	48x2	267	1360	850	915	813	692	24-41	70x2
28	700	292	1260	770	835	795.3	762	40-22	43.0x2	430	1410	980	920	857.2	787	36-36	87.4x2
30	750	318	1350	820	885	846.1	813	44-22	43.0x2	450	1495	1010	990	920.8	845	36-39	92.1x2
32	800	318	1400	850	940	900.1	864	48-22	44.6x2	470	1535	1080	1055	977.9	902	32-42	101.6x2
36	900	330	1550	930	1055	1009.6	972	44-26	50.9x2	510	1585	1110	1170	1089	1010	32-45	101.6x2
40	1000	410	1650	980	1175	1120.8	1080	44-30	54.1x2	550	1605	1150	1275	1190.6	1114	40-45	114.3x2
44	1100	450	1850	1100	1275	1222.4	1181	52-30	58.9x2	590	2100	1380	1385	1295.4	1219	40-48	125.5x2
48	1200	470	1950	1150	1390	1335.1	1289	44-33	63.6x2	630	2270	1410	1510	1416	1327	40-51	127.0x2
52	1300	470	2050	1200	1495	1436.7	1391	52-33	68.4x2	–	–	–	–	–	–	–	–
56	1400	530	2200	1400	1600	1543	1492	60-33	71.6x2	–	–	–	–	–	–	–	–
60	1500	530	2350	1460	1725	1662.1	1600	52-36	74.7x2	–	–	–	–	–	–	–	–

DN		600Lb								900Lb							
Inch	mm	L	H	H1	D	D1	D2	Z-Φd	bxf	L	H	H1	D	D1	D2	Z-Φd	bxf
2	50	150	355	230	165	127	92	8-19	26x7	–	–	–	–	–	–	–	–
2 1/2	65	170	430	260	190	149.2	105	8-22	29x7	–	–	–	–	–	–	–	–
3	80	180	480	290	210	168.3	127	8-22	32x7	–	–	–	–	–	–	–	–
4	100	190	510	320	275	215.9	157	8-26	38x7	–	–	–	–	–	–	–	–
5	125	200	590	380	330	266.7	186	8-29	45x7	–	–	–	–	–	–	–	–
6	150	210	620	400	355	292.1	216	12-29	48x7	250	760	460	380	317.5	216	8-32	55.6x7
8	200	230	730	460	420	349.2	270	12-32	56x7	310	850	530	470	393.7	270	8-39	63.5x7
10	250	250	870	550	510	431.8	324	16-35	64x7	350	980	635	545	469.9	324	12-39	69.9x7
12	300	270	930	600	560	489	381	20-35	67x7	380	1050	690	610	533.4	381	16-39	79.4x7
14	350	290	1005	630	605	527	413	20-39	70x7	400	1130	720	640	558.8	413	16-42	85.8x7
16	400	310	1135	705	685	603.3	470	20-42	76x7	430	1195	740	705	616	470	16-45	88.9x7
18	450	330	1200	750	745	654	533	20-45	83x7	460	1340	840	785	685.8	533	16-52	101.6x7
20	500	350	1270	780	815	723.9	584	24-45	89x7	490	1410	865	855	749.3	584	16-54	108x7
24	600	390	1440	880	940	838.2	692	24-51	102x7	530	1645	990	1040	901.7	692	16-67	139.7x7
28	700	430	1700	1065	950	863.6	784	28-48	115.9x7	–	–	–	–	–	–	–	–
32	750	470	1835	1130	1085	984.2	895	28-55	130.2x7	–	–	–	–	–	–	–	–

BUTTERELY VALVE SERIES

D3/6/973H

GB Vafer Butterly Valve



D373H D673H D973H

Performance specif cation

Nominal Diameter	Nominal Pressure	Test Pressure (MPa)			Leakage	Applicable Temperature	Applicable Media	Operation
DN(mm)	PN(MPa)	Shell Test	Seal Test	Air Sealing Test				
50~2000	0.6	0.9	0.66	0.6	<0.1 x DNmm³/s According to Standard GB/T13927-92	Carbon steel: -29℃~425℃ Stainless Steel: -400℃- 600℃	Air,Water,Steam Coal Gas,Oil and Acid, Alkalil Salt Corrosive Medium and so on.	Lever Operator, Worm Gear Operator, Pneumatic Operator, Electric Operator,
	1.0	1.5	1.1	0.6				
	1.6	2.4	1.76	0.6				
	2.5	3.75	2.75	0.6				
50~1200	4.0	6.0	4.4	0.6				

Materials of main parts

Parts Name	Material
Body	Cast iron, Stainless steel, Cr.Mo.Steel, alloy steel
Disc	Cast steel. Alloy steel, stainless steel, Cr. Mo. Steel
Sealing Ring	Stainless steel and high temperature resistan asbestos composed of multiple layers
Stem	2Cr13、1Cr13、Stainless steel、Cr,Mo,Steel
Bearing	ZG00CrNi10,304 nitrification
Packing	Flexible Graphite

D3/6/973H

GB Vafer Butterly Valve

Main shape size and connection size

Size: mm

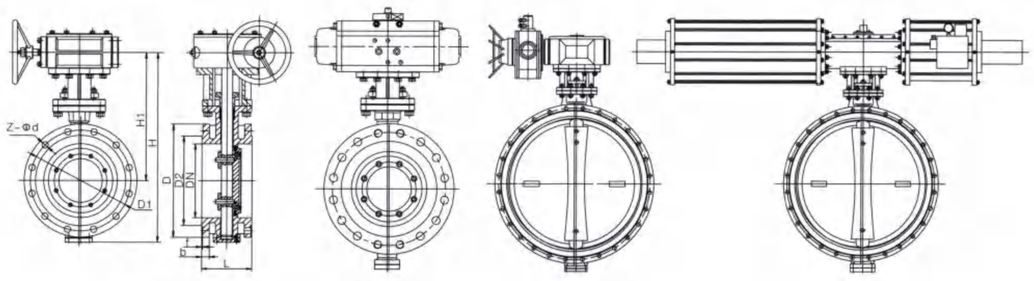
DN(mm)	Main Dimension				PN0.6MPa			PN1.0MPa			PN1.6MPa		
	L1	L2	H	H1	D1	D2	Z-Φ(M)d	D1	D2	Z-Φ(M)d	D1	D2	Z-Φ(M)d
	D373H/F、D673H/F、D973H/F												
50	43	43	272	200	110	90	4-14	125	102	4-18	125	102	4-18
65	46	46	335	225	130	110	4-14	145	122	4-18	145	122	4-18
80	49	64	355	240	150	128	4-18	160	138	4-18	160	138	4-18
100	56	64	385	255	170	148	4-18	180	158	4-18	180	158	4-18
125	64	70	455	305	200	178	4-18	210	188	4-18	210	188	4-18
150	70	76	490	325	225	202	4-18	240	212	4-22	240	212	4-22
200	71	89	590	380	280	258	4-18	295	268	4-22	295	268	4-22
250	76	114	655	410	335	312	4-18	350	320	4-22	355	320	4-26
300	83	114	740	460	395	365	4-22	400	370	4-22	410	378	4-26
350	92	127	840	525	445	415	4-22	460	430	4-M20	470	438	4-M24
400	102	140	890	545	495	465	4-M20	515	482	4-M24	525	490	4-M27
450	114	152	1010	630	550	520	4-M20	565	532	4-M24	585	550	4-M27
500	127	152	1065	650	600	570	4-M20	620	585	4-M24	650	610	4-M30
600	154	178	1140	680	705	670	4-M24	725	685	4-M27	770	725	4-M33
700	165	229	1268	780	810	775	4-M24	840	800	4-M27	840	795	4-M33
800	190	241	1432	860	920	880	4-M27	950	905	4-M30	950	900	4-M36
900	203	241	1528	900	1020	980	4-M27	1050	1005	4-M30	1050	1000	4-M36
1000	216	300	1698	1000	1120	1080	4-M27	1160	1110	4-M33	1170	1115	4-M39
1200	254	360	1910	1100	1340	1295	4-M30	1380	1330	4-M36	1390	1330	4-M45
1400	279	390	2140	1200	1560	1510	4-M33	1590	1535	4-M39	1590	1530	4-M45
1600	318	440	2420	1330	1760	1710	4-M33	1820	1760	4-M45	1820	1750	4-M52
DN(mm)	Main Dimension				PN2.5MPa			PN4.0MPa			PN6.3MPa		
	L1	L2	H	H1	D1	D2	Z-Φ(M)d	D1	D2	Z-Φ(M)d	D1	D2	Z-Φ(M)d
50	43	43	272	200	125	102	4-18	125	102	4-18	135	102	4-22
65	46	46	335	225	145	122	4-18	145	122	4-18	160	122	4-22
80	49	64	355	240	160	138	4-18	160	138	4-18	170	138	4-22
100	56	64	385	255	190	162	4-22	190	162	4-22	200	162	4-26
125	64	70	455	305	220	188	4-26	220	188	4-26	240	188	4-30
150	70	76	490	325	250	218	4-26	250	218	4-26	280	218	4-33
200	71	89	590	380	310	278	4-26	320	285	4-M27	345	285	4-M33
250	76	114	655	410	370	335	4-30	385	345	4-M30	400	345	4-M33
300	83	114	740	460	430	395	4-M27	450	410	4-M30	460	410	4-M33
350	92	127	840	525	490	450	4-M30	510	465	4-M33	525	465	4-M36
400	102	140	890	545	550	505	4-M33	585	535	4-M36	585	535	4-M39
450	114	152	1010	630	600	555	4-M33	610	560	4-M36	-	-	-
500	127	152	1065	650	660	615	4-M33	670	615	4-M39	-	-	-
600	154	178	1140	680	770	720	4-M36	795	735	4-M45	-	-	-
700	165	229	1268	780	875	820	4-M39	-	-	-	-	-	-
800	190	241	1432	860	990	930	4-M45	-	-	-	-	-	-
900	203	241	1528	900	1090	1030	4-M45	-	-	-			
1000	216	300	1698	1000	1210	1140	4-M52	-	-	-			
1200	254	360	1910	1100	1420	1350	4-M52	-	-	-			

Note : eccentric soft sealing (X) (J) butterfly valve connection size. 4.0MPa above structure length is L2

BUTTERELY VALVE SERIES

D3/6/941H

GB Flange Butterly Valve



D341H D641H D941H

Performance specif cation

Nominal Diameter	Nominal Pressure	Test Pressure (MPa)			Leakage	Applicable Temperature	Applicable Media	Operation
DN(mm)	PN(MPa)	Shell Test	Seal Test	Air Sealing Test				
50~2000	0.6	0.9	0.66	0.6	<0.1 x DNmm²/s According to Standard GB/T13927-92	Carbon steel: -29℃ – 425℃ Stainless Steel: -400℃- 600℃	Air,Water,Steam Coal Gas,Oil and Acid, Alkalil Salt Corrosive Medium and so on.	Lever Operator, Worm Gear Operator, Pneumatic Operator, Electric Operator,
	1.0	1.5	1.1	0.6				
	1.6	2.4	1.76	0.6				
	2.5	3.75	2.75	0.6				
50~1200	4.0	6.0	4.4	0.6				

Materials of main parts

Parts Name	Material
Body	Cast iron, Stainless steel, Cr.Mo.Steel, alloy steel
Disc	Cast steel, Alloy steel, stainless steel, Cr. Mo. Steel
Sealing Ring	Stainless steel and high temperature resistan asbestos composed of multiple layers
Stem	2Cr13、1Cr13、Stainless steel、Cr、Mo、Steel
Bearing	ZG00CrNi10,304 nitrification
Packing	Flexible Graphite

D3/6/941H

GB Flange Butterly Valve

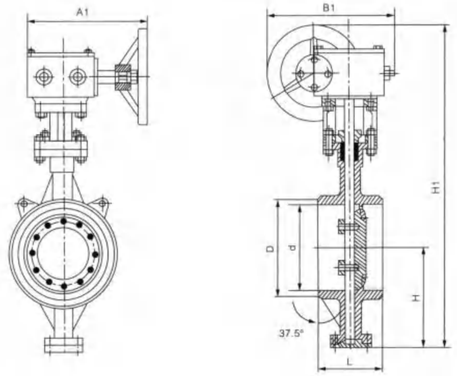
Main shape size and connection size

Size: mm

DN(mm)	Main Dimension				PN0.6MPa					PN1.0MPa					PN1.6MPa				
	L1	L2	H	H1	D	D1	D2	Z-Φd	b×f	D	D1	D2	Z-Φd	b×f	D	D1	D2	Z-Φd	b×f
	D373H/F、D643H/F、D943H/F																		
50	108	150	275	200	140	110	90	4-Φ14	14x3	165	125	102	4-Φ18	18x3	165	125	102	4-Φ18	18x3
65	112	170	303	210	160	130	110	4-Φ14	14x3	185	145	122	8*-Φ18	18x3	185	145	122	8*-Φ18	18x3
80	114	180	324	226	190	150	128	4-Φ18	16x3	200	160	138	8-Φ18	20x3	200	160	138	8-Φ18	20x3
100	127	190	380	250	210	170	148	4-Φ18	16x3	220	180	158	8-Φ18	20x3	220	180	158	8-Φ18	20x3
125	140	200	460	295	240	200	178	8-Φ18	18x3	250	210	188	8-Φ18	22x3	250	210	188	8-Φ18	22x3
150	140	210	490	315	265	225	202	8-Φ18	18x3	285	240	212	8-Φ22	22x3	285	240	212	8-Φ22	22x3
200	152	230	600	380	320	280	258	8-Φ18	20x3	340	295	268	8-Φ22	24x3	340	295	268	12-Φ22	24x3
250	165	250	655	405	375	335	312	12-Φ18	22x3	395	350	320	12-Φ22	26x3	405	355	320	12-Φ26	26x3
300	178	270	780	480	440	395	365	12-Φ22	22x4	445	400	370	12-Φ22	26x4	460	410	378	12-Φ26	28x4
350	190	290	875	545	490	445	415	12-Φ22	22x4	505	460	430	16-Φ22	26x4	520	470	438	16- Φ26	30x4
400	216	310	910	550	540	495	465	16-Φ22	22x4	565	515	482	16-Φ26	26x4	580	525	490	16-Φ30	32x4
450	222	330	1000	620	595	550	520	16-Φ22	22x4	615	565	532	20-Φ26	28x4	640	585	550	20-Φ30	40x4
500	229	350	1090	680	645	600	570	20-Φ22	24x4	670	620	585	20-Φ26	28x4	715	650	610	20-Φ33	44x4
600	267	390	1210	750	755	705	670	20-Φ26	30x5	780	725	685	20-Φ30	34x5	840	770	725	20-Φ36	54x5
700	292	430	1350	820	860	810	775	24-Φ26	26x5	895	840	800	24-Φ30	34x5	910	840	795	24-Φ36	40x5
800	318	470	1520	910	975	920	880	24-Φ30	26x5	1015	950	905	24-Φ33	36x5	1025	950	900	24-Φ39	42x5
900	330	510	1570	930	1075	1020	980	24-Φ30	26x5	1115	1050	1005	28-Φ33	38x5	1125	1050	1000	28-Φ39	44x5
1000	410	550	1700	980	1175	1120	1080	28-Φ30	28x5	1230	1160	1110	28-Φ36	38x5	1255	1170	1115	28-Φ42	46x5
1200	470	630	2040	1220	1405	1340	1295	32-Φ33	28x5	1455	1380	1330	32-Φ39	44x5	1485	1390	1330	32-Φ48	52x5
1400	530	710	2240	1310	1630	1560	1510	36-Φ36	32x5	1675	1590	1535	36-Φ42	48x5	1685	1590	1530	36-Φ48	58x5
1600	600	790	2440	1460	1830	1760	1710	40-Φ36	34x5	1915	1820	1760	40-Φ48	52x5	1930	1820	1750	40-Φ56	64x5
1800	670	870	2650	1560	2045	1970	1920	44-Φ39	36x5	2115	2020	1960	44-Φ48	56x5	2130	2020	1950	44-Φ56	68x5
2000	760	950	2860	1670	2265	2180	2125	48-Φ42	38x5	2325	2230	2170	48-Φ48	60x5	2345	2230	2150	48-Φ62	70x5

DN(mm)	PN2.5MPa					PN4.0MPa					PN6.3MPa					PN10.0MPa				
	D	D1	D2	Z-Φd	b×f	D	D1	D2	Z-Φd	b×f	D	D1	D2	Z-Φd	b×f	D	D1	D2	Z-Φd	b×f
50	165	125	102	4-Φ18	20x3	165	125	102	4-Φ18	20x3	180	135	102	4-Φ22	26x3	195	145	102	4-Φ26	30x3
65	185	145	122	8-Φ18	22x3	185	145	122	8-Φ18	22x3	205	160	122	8-Φ22	26x3	220	170	122	8-Φ26	34x3
80	200	160	138	8-Φ18	24x3	200	160	138	8-Φ18	24x3	215	170	138	8-Φ22	28x3	230	180	138	8-Φ26	36x3
100	235	190	162	8-Φ22	24x3	235	190	162	8-Φ22	24x3	250	200	162	8-Φ26	30x3	265	210	162	8-Φ30	40x3
125	270	220	188	8-Φ26	26x3	270	220	188	8-Φ26	26x3	295	240	188	8-Φ30	34x3	315	250	188	8-Φ33	40x3
150	300	250	218	8-Φ26	28x3	300	250	218	8-Φ26	28x3	345	280	218	8-Φ33	36x3	355	290	218	12-Φ33	44x3
200	360	310	278	12-Φ26	30x3	375	320	285	12-Φ30	34x3	415	345	285	12-Φ36	42x3	430	360	285	12-Φ36	52x3
250	425	370	335	12-Φ30	32x3	450	385	345	12-Φ33	38x3	470	400	345	12-Φ36	46x3	505	430	345	12-Φ39	60x3
300	485	430	395	16-Φ30	34x4	515	450	410	16-Φ33	42x4	530	460	410	16-Φ36	52x4	585	500	410	16-Φ42	68x4
350	555	490	450	16-Φ33	38x4	580	510	465	16-Φ36	46x4	600	525	465	16-Φ39	56x4	655	560	465	16-Φ48	74x4
400	620	550	505	16-Φ36	40x4	660	585	535	16-Φ39	50x4	670	585	535	16-Φ42	60x4	715	620	535	16-Φ48	78x4
450	670	600	555	20-Φ36	46x4	685	610	560	20-Φ39	57x4	732	645	560	20-Φ39	64x4	–	–	–	–	–
500	730	660	615	20-Φ36	48x4	755	670	615	20-Φ42	57x4	800	705	615	20-Φ48	68x4	–	–	–	–	–
600	845	770	720	20-Φ39	58x5	890	795	735	20-Φ48	72x5	930	820	735	20-Φ56	76x5	–	–	–	–	–
700	960	875	820	24-Φ42	50x5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
800	1085	990	930	24-Φ48	54x5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
900	1185	1090	1030	28-Φ48	58x5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1000	1320	1210	1140	28-Φ56	62x5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1200	1530	1420	1350	32-Φ56	70x5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1400	1755	1640	1560	36-Φ62	76x5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1600	1975	1860	1780	40-Φ62	84x5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1800	2195	2070	1985	44-Φ70	90x5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2000	2425	2300	2210	48-Φ70	96x5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Butt Welding MetalSeated Butterly Valve



Uses and Charac Teristics

The butterfly valve is uesd as opening and closing, or adjusting medium on the pipe of high temperatu re, high pressure and fireproof. Its main charateristics as below:

1 .Tight structure, small volume, light weight, smart operation and convenient using

2.The valve adopts triple eccentric resilence or multilayer metal seated structure tO achieve zero leakage of sealing.

3.This valve doesn't have flange, so it is convenient for thermal insulation of the pipeline.

4.The valve is characterised by high temperature resistance, high pressure resistance, corrosion resistance and wear resistance, etc.

Drive Type

Worm gear drive,pneumatic drive, electric d rive.

Adoption Standard

Welding dimension	Face to face length	Pressure test
GB12224; ANSI B16.25; DIN2559	GB/T12221-1989; API609	GB/T13927-1992; API598

Performance specif cation

Nominal diameter	DN(mm)	50~700				
Nominal pressure	PN(MPa)	0.6	1.0	1.6	2.5	4.0
Test Pressure Ps(MPa)	Shell test	0.9	1.5	2.4	3.75	6.0
	Seal test	0.66	1.1	1.76	2.75	4.4
	Air Sealing Test	0.6	0.6	0.6	0.6	0.6
Appropriate Medium	Water, Steam, Oil, Acid corrosive and so on.					
Appropriate Temperatuer	Carbon steel: -29℃ - 425℃ Stainless steel: -40℃ - 600℃					

Materials of main parts

Parts Name	Material
Body	Cast steel,stainless steel,Cr.Mo.Steel and ad hoc material
Disc	Cast steel,Alloy steel,stainless steel,Cr.Mo.Steel and ad hoc material
Sealing Ring	Stainless steel, resist grind material
Stem	2Cr13、1Cr13、Stainless steel, Cr.Mo.Steel
Packing	Flexible Graphite

Butt Welding MetalSeated Butterly Valve

Main shape size and connection size

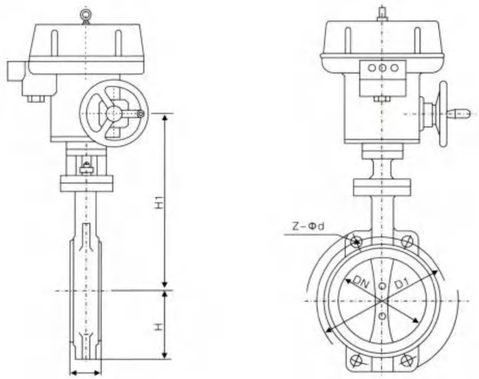
Size: mm

PN0.6MPa									PN1.0MPa								
DN(mm)		External Dimension(Consult)							DN(mm)		External Dimension(Consult)						
mm	inch	L	D	d	H	H1	A	B	mm	inch	L	D	d	H	H1	A	B
600	24	390	636	602	499	1280	570	660	600	24	390	636	602	499	1280	570	660
700	28	430	726	692	566	1480	750	550	700	28	430	726	692	566	1480	750	550
800	32	470	826	792	632	1608	750	550	800	32	470	826	792	632	1608	750	550
900	36	510	926	892	693	1857	750	550	900	36	510	926	892	693	1857	750	550
1000	40	550	1028	992	757	2038	900	750	1000	40	550	1028	992	757	2038	900	750
1200	48	630	1228	1192	851	2237	1000	925	1200	48	630	1228	1192	851	2237	1000	925
1400	56	710	1428	1392	876	2411	1000	925	1400	56	710	1428	1392	876	2411	1000	925
1600	64	790	1628	1592	1095	2756	1000	925	1600	64	790	1628	1592	1095	2756	1000	925
1800	72	870	1828	1792	1214	3093	1100	980	1800	72	870	1828	1792	1214	3093	1100	980
2000	80	950	2028	1992	1332	3355	1100	980	2000	80	950	2028	1992	1332	3355	1100	980
PN1.6MPa									PN1.6MPa								
DN(mm)		External Dimension(Consult)							DN(mm)		External Dimension(Consult)						
mm	inch	L	D	d	H	H1	A	B	mm	inch	L	D	d	H	H1	A	B
80	3	180	90	78	90	356	180	200	600	24	390	636	602	509	1369	570	660
100	4	190	110	96	100	375	180	200	700	28	430	726	692	572	1492	750	550
125	5	200	135	121	113	401	180	200	800	32	470	826	792	638	1622	750	550
150	6	210	161	146	130	450	270	280	900	36	510	926	892	700	1924	750	550
200	8	230	222	202	205	545	400	425	1000	40	550	1028	992	765	2054	900	750
250	10	250	278	254	235	630	400	425	1200	48	630	1228	1192	860	2259	1000	925
300	12	270	330	303	275	715	450	560	1400	56	710	1428	1392	986	2610	1000	925
350	14	290	382	351	309	817	450	560	1600	64	790	1628	1592	1106	2856	1000	925
400	16	310	432	398	346	923	535	580	1800	72	870	1828	1792	1226	3121	1100	980
450	18	330	484	450	392	1059	535	580	2000	80	950	2028	1992	1345	3385	1100	980
500	20	350	535	501	427	1126	535	580									
PN2.5MPa									PN4.0MPa								
DN(mm)		External Dimension(Consult)							DN(mm)		External Dimension(Consult)						
mm	inch	L	D	d	H	H1	A	B	mm	inch	L	D	d	H	H1	A	B
80	3	180	90	78	90	356	180	200	80	3	180	90	78	108	430	180	200
100	4	190	110	96	106	387	180	200	100	4	190	110	96	108	392	180	200
125	5	200	135	121	122	413	180	200	125	5	200	135	120	120	414	180	200
150	6	210	161	146	136	459	270	280	150	6	210	161	145	135	494	270	280
200	8	230	222	202	215	585	400	425	200	8	230	222	200	202	578	400	425
250	10	250	278	254	247	649	400	425	250	10	250	278	252	235	673	400	425
300	12	270	330	303	288	771	450	560	300	12	270	330	301	280	793	450	560
350	14	290	382	351	333	929	450	560	350	14	290	382	351	315	921	450	560
400	16	310	432	398	359	993	535	580	400	16	310	432	398	355	1021	535	580
450	18	330	484	450	405	1053	535	580	450	18	330	484	448	370	1143	535	580
500	20	350	535	501	444	1245	535	580	500	20	350	535	495	420	1192	535	580
600	24	390	636	602	521	1750	570	660	600	24	390	636	595	490	1327	570	660
700	28	430	726	692	586	1519	750	550									
800	32	470	826	792	659	1659	750	550									
900	36	510	926	892	720	1829	750	550									
1000	40	550	1028	992	780	1949	900	750									
1200	48	630	1228	1192	889	2243	1000	925									
1400	56	710	1428	1392	1000	2462	1000	925									

BUTTERELY VALVE SERIES

BUTTERELY VALVE

Wafer Soft Seated Butterly Valve

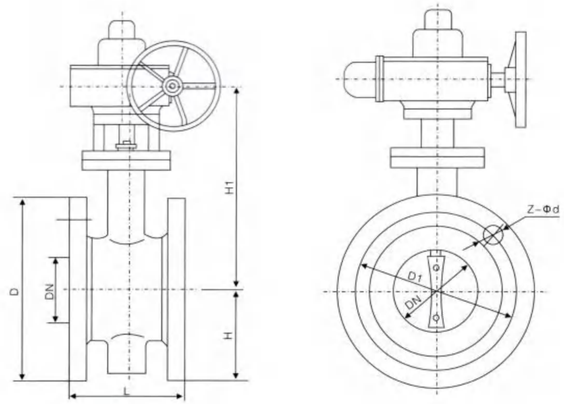


Main shape size and connection size

Size: mm

DN		Main Dimension			PN0.25MPa–PN0.6MPa			PN1.0MPa			PN1.6MPa		
mm	inch	L	H	H1	D1	Z–Φd	a	D1	Z–Φd	a	D1	Z–Φd	a
D71、D371、D671、D971(X.J)													
50	2	43	80	160	110	4–14	45°	125	4–18	45°	125	4–18	45°
65	2 1/2	46	88	175	130	4–14	45°	145	4–18	45°	145	4–18	45°
80	3	46	96	180	150	4–18	22° 30'	160	4–18	22° 30'	160	4–18	22° 30'
100	4	52	115	200	170	4–18	22° 30'	180	4–18	22° 30'	180	4–18	22° 30'
125	5	56	125	213	200	4–18	22° 30'	210	4–18	22° 30'	210	4–18	22° 30'
150	6	56	140	225	225	4–18	22° 30'	240	4–23	22° 30'	240	4–23	22° 30'
200	8	60	175	260	280	4–18	22° 30'	295	4–23	22° 30'	295	4–23	15°
250	10	68	202	290	335	4–18	15°	350	4–23	15°	355	4–25	15°
300	12	78	242	330	395	4–23	15°	400	4–23	15°	410	4–25	15°
350	14	78	266	360	445	4–23	11° 15°	460	4–23	11° 15'	470	4–25	11° 15'
400	16	102	298	390	495	4–23	11° 15°	515	4–25	11° 15'	525	4–30	11° 15'
450	18	114	315	710	550	4–23	9°	565	4–25	9°	585	4–30	9°
500	20	127	348	430	600	4–23	9°	620	4–25	9°	650	4–34	9°
600	24	154	400	490	705	4–25	9°	725	4–30	9。	770	4–41	9°
700	28	165	520	550	810	4–25	7° 30'	840	4–M27	7° 30'	840	4–M36	7° 30'
800	32	190	591	610	920	4–30	7° 30'	950	4–M30	7° 30'	950	4–M36	7° 30'
900	36	203	660	680	1020	4–M27	6° 26'	1050	4–M30	6° 26'	1050	4–M36	6° 26'
1000	40	216	670	730	1120	4–M27	6° 26'	1160	4–M30	6° 26'	1170	4–M42	6° 26'
1200	48	254	780	835	1340	4–M30	5° 38'	1380	4–M36	5° 38'	1390	4–M45	5° 38'
1400	56	279	950	985	1560	4–M33	–	–	–	–	–	–	–

Wafer Soft Seated Butterly Valve



Main shape size and connection size

Size: mm

DN		Main Dimension			PN0.25MPa–PN0.6MPa			PN1.0MPa			PN1.6MPa		
mm	inch	L	H	H1	D	D1	Z–Φd	D	D1	Z–Φd	D	D1	Z–Φd
D41、D341、D641、D941(X.J)													
80	3	114	115	235	185	150	4–18	195	160	4–18	195	160	8–18
100	4	127	120	240	205	170	4–18	215	180	8–18	215	180	8–18
125	5	140	130	270	235	200	8–18	245	210	8–18	245	210	8–18
150	6	140	150	300	260	225	8–18	280	240	8–23	280	240	8–23
200	8	152	180	300	315	280	8–18	335	295	8–23	335	295	12–23
250	10	250	220	400	370	335	12–18	390	350	12–23	405	355	12–25
300	12	270	250	410	435	395	12–23	440	400	12–23	460	410	12–25
350	14	290	270	460	485	445	12–23	500	460	16–23	520	470	16–25
400	16	310	290	510	535	495	16–23	565	515	16–25	585	525	16–30
450	18	330	320	560	590	550	20–23	615	565	20–25	640	585	20–30
500	20	350	360	590	640	600	20–23	670	620	20–25	705	650	20–34
600	24	390	390	660	755	705	20–25	780	725	20–30	840	770	20–41
700	28	430	460	780	860	810	24–25	895	840	24–30	910	840	24–41
800	32	470	530	850	975	920	24–30	1010	950	24–34	1020	950	24–41
900	36	510	570	920	1075	1020	24–30	1110	1050	28–34	1120	1050	28–41
1000	40	550	630	990	1175	1120	28–30	1220	1160	28–34	1255	1170	28–48
1200	48	630	750	1115	1400 1375	1340 1320	32–34 32–30	1450	1380	32–41	1485	1390	32–54
1400	56	710	850	1228	1620 1575	1560 1520	36–34 36–30	1675	1590	36–48	–	–	–
1600	64	790	990	1340	1820 1785	1760 1730	40–34 40–30	1915	1820	40–54	–	–	–
1800	72	870	1100	1570	2045 1985	1970 1930	44–41 44 30	2115	2020	44–54	–	–	–
2000	80	950	1170	1680	2265 2185	2180 2130	48–48 48–30	2325	2230	46–54	–	–	–