

HP Series ; High-Performance Butterfly Valve



HTW Series High-performanc Teflon seat Butterfly Valves(WAFER Type)

- **APPLICATION** : General use : Chemical, petrochemicals, steam, powders etc.
- **SIZE** : DN50 to DN2000 (2 inch to 80 inch)
- **RATING** : ANSI150LB/300/600/900,PN10/16/25/40,JIS10K/16K/20K etc.
- **CONNECTION FLANGE** : See next 15 page
- **WORKING PRESSURE** : Up to 150 bar
- **MATERIAL** : See next 16 page
- **OPERATOR** : Lever,gear,pneumatic,HYD actuator,electric motor ect.



HTL Series High-performanc Teflon seat Butterfly Valves(LUG Type)

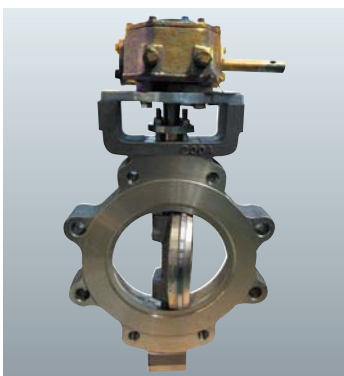
- **APPLICATION** : General use : Chemical, petrochemicals, steam, powders etc.
- **SIZE** : DN50 to DN2000 (2 inch to 80 inch)
- **RATING** : ANSI150LB/300/600/900,PN10/16/25/40,JIS10K/16K/20K etc.
- **CONNECTION FLANGE** : See next 15 page
- **WORKING PRESSURE** : Up to 150 bar
- **MATERIAL** : See next 16 page
- **OPERATOR** : Lever,gear,pneumatic,HYD actuator,electric motor ect.



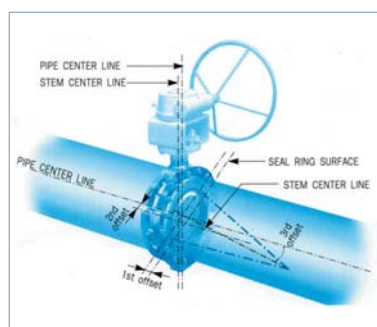
HTF Series High-performanc Teflon seat Butterfly Valves(FLANGE Type)

- **APPLICATION** : General use : Chemical, petrochemicals, steam, powders etc.
- **SIZE** : DN50 to DN2000 (2 inch to 80 inch)
- **RATING** : ANSI150LB/300/600/900,PN10/16/25/40,JIS10K/16K/20K etc.
- **CONNECTION FLANGE** : See next 15 page
- **WORKING PRESSURE** : Up to 150 bar
- **MATERIAL** : See next 16 page
- **OPERATOR** : Lever,gear,pneumatic,HYD actuator,electric motor ect.

TO Series ; Triple Offset Metal Seat Butterfly Valve



TO Series ; Triple Offset Metal Seat Butterfly Valve



- Zero leakage
- Metal Seated
- Inherently Firesafe
- Low operating torques.
- Zero seat/seal friction
- Torque sealed
- Extended service life
- Bi-Directional bubble tight shut-off by design
- Continued sealing through thermal cycling
- Excellent flow and throttling characteristics.
- Excellent control of fugitive emissions.
- Quarter turn operation

High-Performance Butterfly Valve



100% Bi-directional tight shut off at full rated pressure.

Figure Number Abbreviation

- **HRW Series** High-performance Rubber seat Butterfly valves - WAFER type
- **HRL Series** High-performance Rubber seat Butterfly valves - LUG type
- **HRF Series** High-performance Rubber seat Butterfly valves - FLANGE type
- **HTW Series** High-performance Teflon seat Butterfly valves - WAFER type
- **HTL Series** High-performance Teflon seat Butterfly valves - LUG type
- **HTF Series** High-performance Teflon seat Butterfly valves - FLANGE type
- **HMW Series** High-performance Metal seat Butterfly valves - WAFER type
- **HML Series** High-performance Metal seat Butterfly valves - LUG type
- **HMF Series** High-performance Metal seat Butterfly valves - FLANGE type
- **HFW Series** High-performance Fire safe seat Butterfly valves - WAFER type
- **HFL Series** High-performance Fire safe seat Butterfly valves - LUG type
- **HFF Series** High-performance Fire safe seat Butterfly valves - FLANGE type

Standard Compliance

Conform to BS 5155, MSS SP 67 and API 609

Production Range

- SIZE : DN 50 to DN 2000 (2 inch ~ 80 inch)
- Working Pressure : upto 25 bar
- Working Temperature : -100°C ~ +450°C

Connection Flange

- BS4504 PN10, PN16, PN25 and PN40 / DIN2501 PN10, PN16, PN25 and PN40 /
- ANSI B16.5 CL. 150LB and 300LB / MSS SP44 CL. 150LB and 300LB /
- ISO 2531 PN10, PN16, PN25 and PN40 / KS/JIS 10K, 16K & 20K /

Face to Face Dimensions

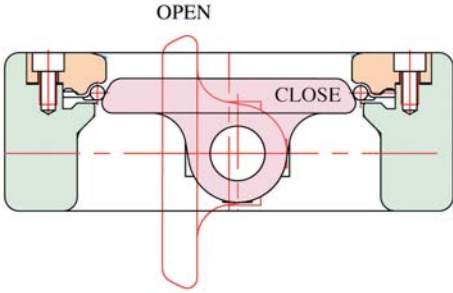
- Conform to BS5155, ISO5752, MSS SP67 and API609

Application

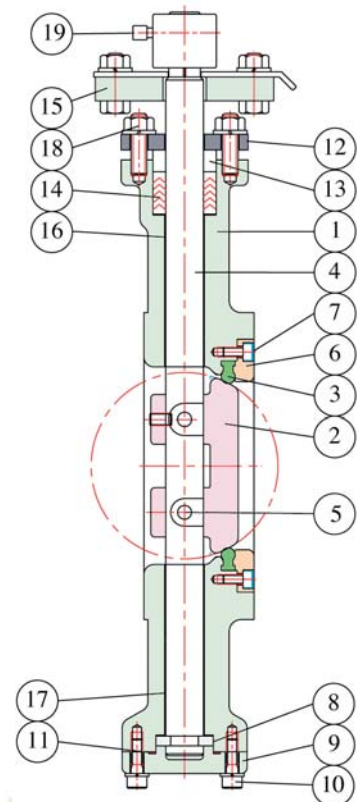
- | | |
|----------------------------|--------------------------------------|
| ▪ Crude Oil | ▪ Chemical and Petro-Chemical Plants |
| ▪ Offshore Plant | ▪ Ethylene |
| ▪ Petroleum Products | ▪ Sea Water |
| ▪ Textile industry | ▪ Water and Others |
| ▪ Sugar refining | ▪ Food Plants |
| ▪ Fire safer Piping system | ▪ Marine tankers- Ship building |
| | ▪ LPG |
| | ▪ Steam |
| | ▪ Foundry |

High-Performance Butterfly Valve

High-Performance Butterfly Valve

	Design Features
	<ul style="list-style-type: none"> • Bi-directional tight shut off. • Reduced weight and overall dimensions. • Low pressure loss and reduced energy costs. • High Kv / Cv values. ■ High reliability. • Easy to clean and disinfect for potable water systems etc. • Easy to handle, to install, and to dismantle. • Less space in storage and installation. • Insulation of noise and heat transfer.

P.NO.	PART NAME	MATERIAL
1	BODY	DUCTILE IRON, CAST STEEL, STAINLESS STEEL, AL-BRONZE, DUPLEX
2	DISC	CAST STEEL, STAINLESS STEEL, AL-BRONZE
3	SEAT	SS. STEEL, TEFLON, RUBBER
4	STEM	SS. STEEL (304, 316, 316L, 630, 17-4PH, Monel)
5	DISC PIN	STAINLESS STEEL
6	RETAINER	STAINLESS STEEL, DUCTILE IRON, MILD STEEL
7	RETAINER BOLT	STAINLESS STEEL
8	THRUST PLATE	BRONZE, STAINLESS STEEL
9	BOTTOM COVER	STAINLESS STEEL, AL-BRONZE
10	BOTTOM BOLT	STAINLESS STEEL
11	BOTTOM GASKET	TEFLON, GRAPHITE
12	PACKING GLAND	SS. STEEL
13	GLAND RING	BRASS, STAINLESS STEEL
14	PACKING	TEFLON, GRAPHITE, RUBBER
15	TOP FLANGE	SS. STEEL
16	STEM BEARING	METALOPLAST, STAINLESS STEEL
17	STEM BEARING	METALOPLAST, STAINLESS STEEL
18	BOLT & NUT	STAINLESS STEEL
19	LEVER	STEEL, DUCTILE IRON



High-Performance Butterfly Valve

The New Concert For Metal Seated Valve

- This product is of heavy load designed for high pressure flow application.
- Excellent durability of seats area and low operating torque by non-rubbing characteristic with triple offset construction.
- Achieved bi-directional zero leakage service by the action of resilient metal seal and torque seating.
- The seat rings both of body and disc are solid and real metal, can't be finished away as lamellar seat.

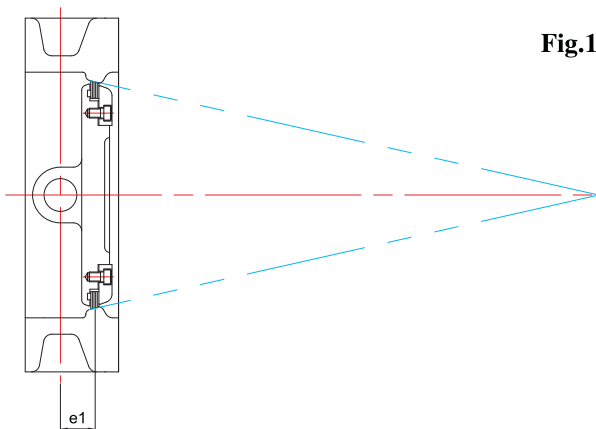


Fig.1

SINGLE OFFSET

The centre of rotation is moved back from the centreline of the valve disc. The seat and seal are designed conically and on centre. This design relies on a frictional, interference seal and so is applicable only to soft seated valves.

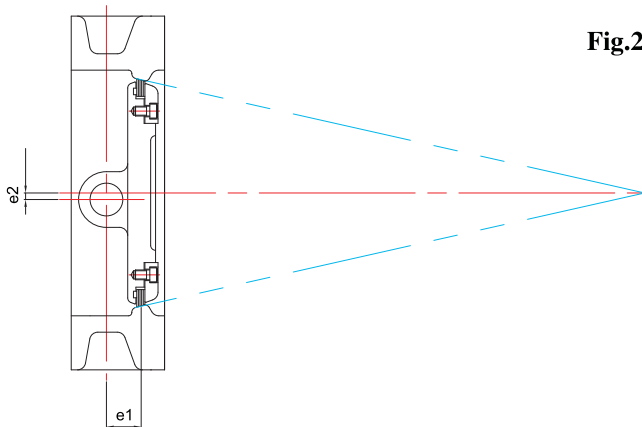


Fig.2

DOUBLE OFFSET

The centre of rotation is moved from the centerline of the valve body. The seat and seal design remains conical and on centre. This design again relies on a frictional, interference seal, but the length of rotation over which this friction occurs is reduced, allowing a larger range of process resistant seat materials to be used. However these materials must be relatively soft or highly elastic to prevent "jamming".

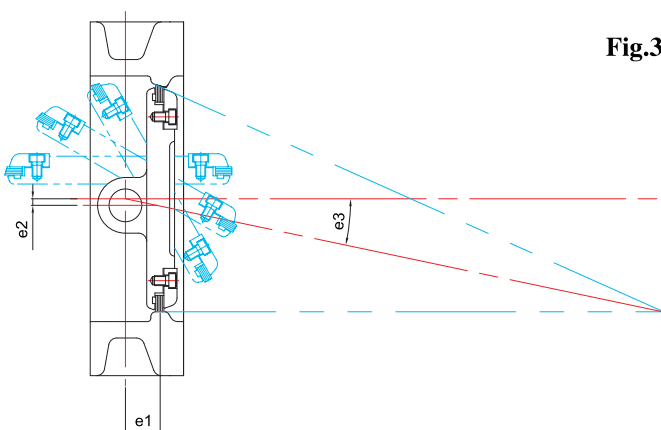


Fig.3

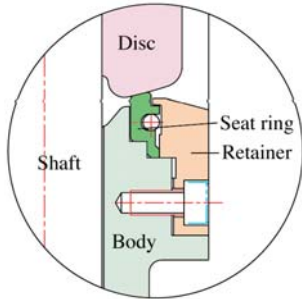
TRIPLE OFFSET

The centreline of the cone is rotated away from the valve centreline resulting in an ellipsoidal profile and providing the third offset. With this geometry, seat seal interference is completely eliminated ensuring long sealing life. The result is a torque seated, process pressure aided FRICTIONLESS seal. The geometry allows the body seat to be used as the closed limit stop, aiding operator adjustment. The Triple Offset design is ideally suited to metal seated valves providing bubble-tight performance on high temperature, high pressure and firesafe applications.

High-Performance Butterfly Valve

Design Features

Soft Seated (-45°C ~ +180°C)



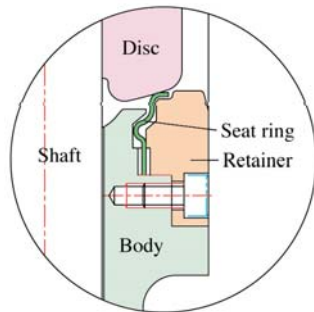
The RTFE seat ring is well-suited for extremely corrosive chemical solutions and high-temperature fluids of up to +210°C.

APPLICATIONS

Pharmaceuticals, water, jet fuel, Saturated steam, chlorine, ammonia, natural gas vacuum, oxygen, nitrogen, air-conditioning chilled, exhaust gas, town gas, hot water.

Abrasives, suspended solids, scaling mediums

Metal Seated (up to 450°C)

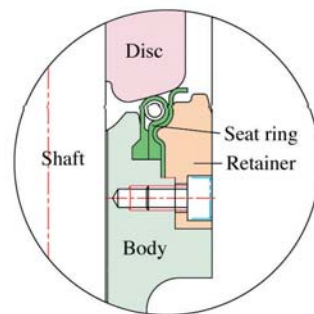


The metal seat ring allows control of extremely high-temperature fluids, thereby replacing conventional gate valves, and ball valves.

APPLICATIONS

High temperature, low temperature, abrasives, fly ash, slurries, steam, air, combustion gas, exhaust gas, nitrogen gas, sulfuric acid gas.

Fire Seated (-45°C ~ +210°C)



PTFE-metal-seat system

- Bidirectional sealing and fire safe design.

Bidirectional

- The primary PTFE seat ring will be replenished with a secondary metal back-up ring. This metal seat provides a mechanical load to energize the PTFE-seat. In combination with the line pressure a bidirectional sealing against the design pressure is obtained.

Fire safe design

- After a fire, when the PTFE-seat ring has burned away, the secondary metal seat gives bidirectional sealing. This sealing system meets the fire test requirement.

APPLICATIONS

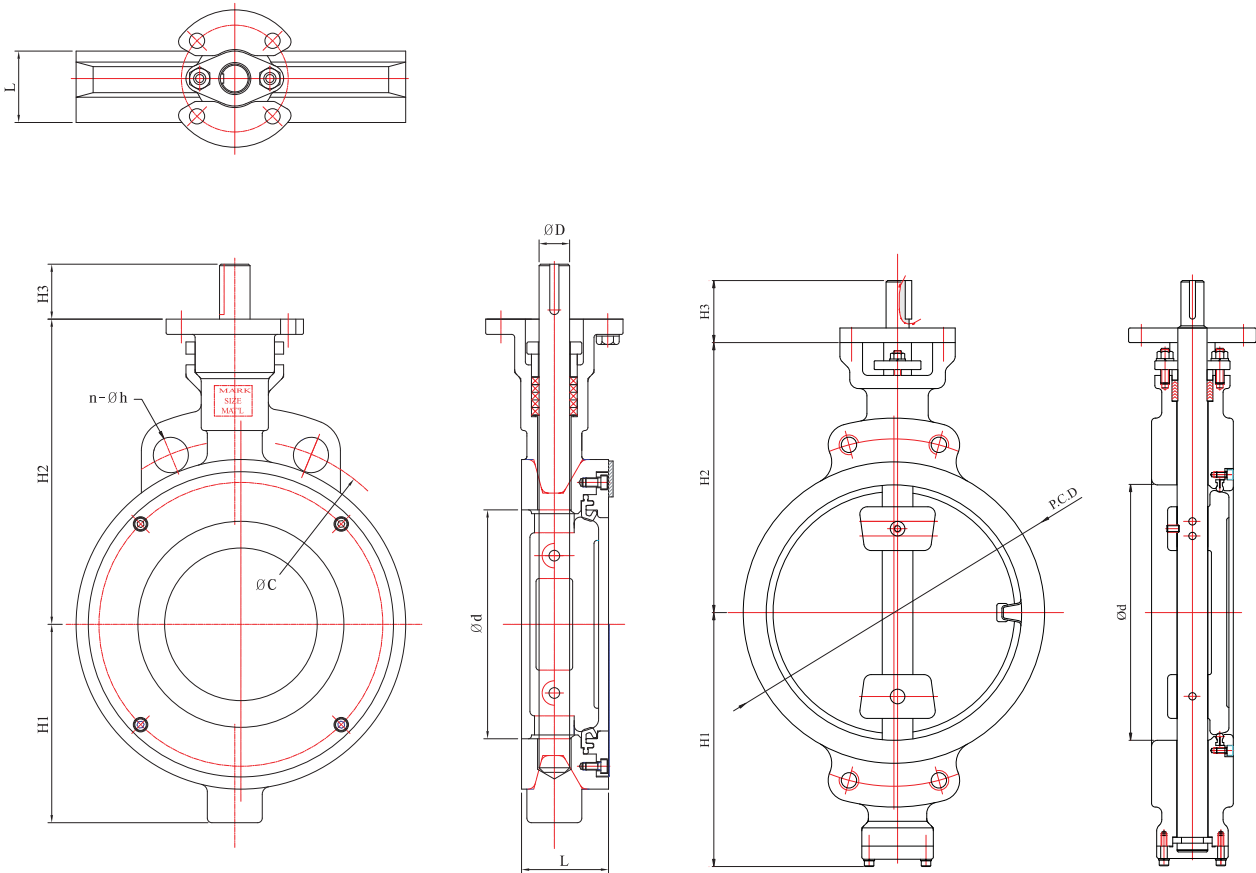
Fire-safe installations, abrasives, slurries, steam

Operations

The following operation of the valves are possible, the choice is depending upon the valve location and the type of work and service for which the valve is used.

- Bare stem type valve only
- valve with gear operated
- valve with pneumatic actuator
- valve with 10 position lever operated
- valve with electric actuator
- valve with hydraulic actuator

HPW Series High-Performance Butterfly Valve / Wafer Type Dimension



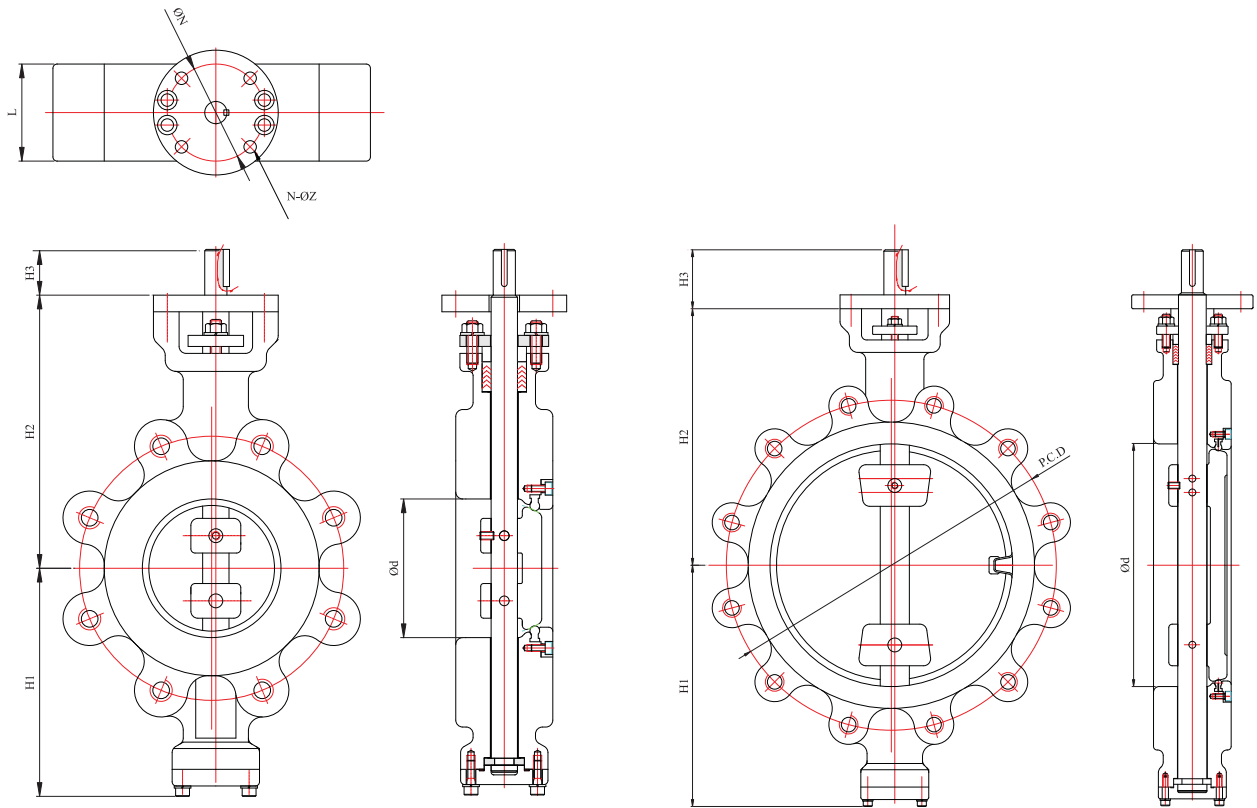
VALVE DIMENSIONS

unit : mm

SIZE		Ø d	L		H1	H2	H3	Ø D	TOP FLANGE TYPE	JIS 10K			ANSI 150LB			BS 4504 PN 10			WEIGHT (APPROX.) (kg)
inch	mm		#150	#300						Ø C	n	h	Ø C	n	h	Ø C	n	h	
2"	50	50	43	43	60	180	35	16	F 07	120	4	19	120.5	4	19	125	4	19	4.5
2.5"	65	65	46	46	70	180	35	16	F 07	140	4	19	139.5	4	19	145	4	19	5.5
3"	80	80	48	48	75	185	35	19	F 07	150	8	19	152.5	4	19	160	8	19	9.0
4"	100	100	54	54	100	200	35	19	F 07	175	8	19	190.5	8	19	180	8	19	10.0
5"	125	125	57	57	110	215	35	20	F 07	210	8	23	216.0	8	22	210	8	19	13.0
6"	150	150	57	59	130	235	35	20	F 07	240	8	23	241.5	8	22	240	8	23	17.0
8"	200	200	64	73	150	255	50	25	F 10	290	12	23	298.5	8	22	295	8	23	26.0
10"	250	250	71	83	245	300	50	32	F 10	355	12	25	362.0	12	25	350	12	23	40.0
12"	300	300	81	92	285	320	50	32	F 10	400	16	M22	432.0	12	25	400	12	23	68.0
14"	350	350	92	117	342	440	80	42	F 14	445	16	M22	476.0	12	29	460	16	M20	93.0
16"	400	400	102	133	380	460	80	42	F 14	510	16	M24	539.5	16	1"	515	16	M24	121.0
18"	450	450	114	149	402	492	120	50	F 16	565	20	M24	578.0	16	1 1/4"	565	20	M24	144.0
20"	500	500	127	159	432	552	120	50	F 16	620	20	M24	635.0	20	1 1/2"	620	20	M24	160.0
22"	550	550	154	159	465	572	120	65	F 16	680	20	M30	392.2	20	1 1/2"	-	-	-	228.0
24"	600	600	154	181	510	610	120	65	F 16	730	24	M30	749.5	20	1 1/2"	725	20	M27	284.0
26"	650	650	165	-	540	630	120	65	F 16	780	24	M30	806.5	24	1 1/2"	-	-	-	327.0
28"	700	700	165	-	570	665	120	65	F 25	840	24	M30	863.5	28	1 1/2"	840	24	M27	388.0
30"	750	750	190	-	595	695	140	80	F 25	900	24	M30	914.5	28	1 1/2"	-	-	-	462.0
32"	800	800	190	-	640	740	140	80	F 25	950	28	M30	978.0	28	1 1/2"	950	24	M30	607.0
36"	900	900	203	-	705	800	140	90	F 25	1050	28	M30	1086.0	32	1 1/2"	1050	28	M30	860.0
40"	1000	1000	216	-	675	865	140	90	F 25	1160	28	M36	1200.0	36	1 1/2"	1160	28	M33	1180.0
44"	1100	1100	254	-	830	925	170	120	F 30	1270	28	M36	1314.5	40	1 1/2"	-	-	-	1460.0
48"	1200	1200	254	-	890	990	170	120	F 30	1380	32	M36	1422.4	44	1 1/2"	1380	32	M36	1800.0
56"	1400	1400	280	-	950	1160	180	140	F 30	-	-	-	1651	48	1 1/2"	1590	36	M39	2045.0
64"	1600	1600	360	-	1100	1260	180	140	F 35	-	-	-	-	-	-	1820	40	M45	2570.0
72"	1800	1800	360	-	1200	1370	200	170	F 35	-	-	-	2095.5	60	1 1/2"	2020	44	M45	2895.0
80"	2000	2000	400	-	1275	1450	220	170	F 40	-	-	-	2230	48	1 1/2"	2230	48	M45	3120.0

Specification and design are subject to change without notice

HPL Series High-Performance Butterfly Valve / Lug Type Dimension



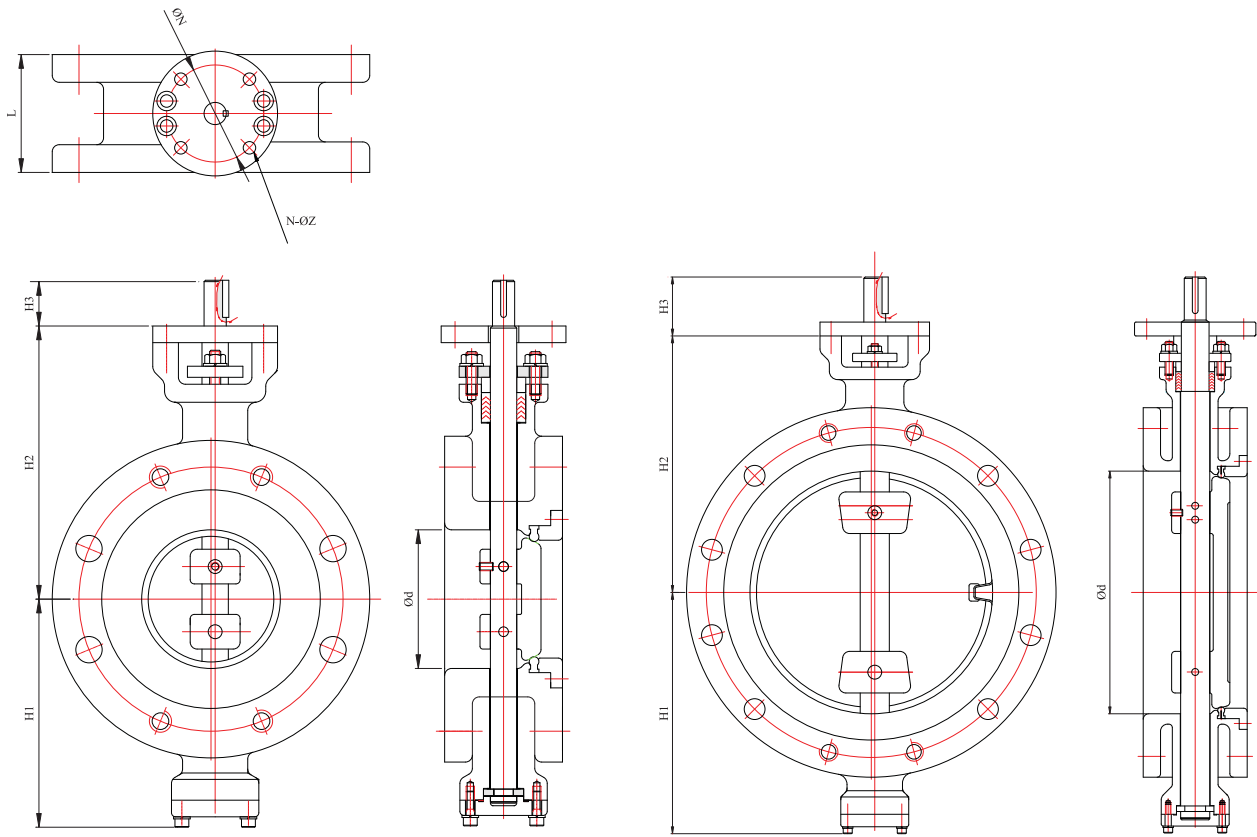
VALVE DIMENSIONS

unit : mm

SIZE		Ød	L		H1	H2	H3	ØD	TOP FLANGE TYPE	JIS 10K			ANSI 150LB			BS 4504 PN 10			WEIGHT (APPROX.) (kg)
inch	mm		#150	#300						Øc	n	h	Øc	n	h	Øc	n	h	
2"	50	50	43	43	115	182	45	16	F 07	120	4	19	120.5	4	19	125	4	M16	4.5
2.5"	65	65	46	46	130	200	45	16	F 07	140	4	19	139.5	4	19	145	4	M16	5.5
3"	80	80	48	48	140	215	45	19	F 07	150	8	19	152.5	4	19	160	8	M16	9.0
4"	100	100	54	54	160	232	45	19	F 07	175	8	19	190.5	8	19	180	8	M16	10.0
5"	125	125	57	57	185	245	45	20	F 07	210	8	23	216.0	8	22	210	8	M16	13.0
6"	150	150	57	59	190	260	45	20	F 07	240	8	23	241.5	8	22	240	8	M20	17.0
8"	200	200	64	73	220	292	65	25	F 10	290	12	23	298.5	8	22	295	8	M20	26.0
10"	250	250	71	83	270	353	65	32	F 10	355	12	25	362.0	12	25	350	12	M20	40.0
12"	300	300	81	92	300	372	65	32	F 10	400	16	M22	432.0	12	25	400	12	M20	68.0
14"	350	350	92	117	342	440	80	42	F 14	445	16	M22	476.0	12	29	460	16	M20	93.0
16"	400	400	102	133	380	460	80	42	F 14	510	16	M24	539.5	16	1"	515	16	M24	121.0
18"	450	450	114	149	402	492	120	50	F 16	565	20	M24	578.0	16	1 1/4"	565	20	M24	144.0
20"	500	500	127	159	432	552	120	50	F 16	620	20	M24	635.0	20	1 1/4"	620	20	M24	160.0
22"	550	550	154	159	465	572	120	65	F 16	680	20	M30	392.2	20	1 1/2"	-	-	-	228.0
24"	600	600	154	181	510	610	120	65	F 16	730	24	M30	749.5	20	1 1/2"	725	20	M27	284.0
26"	650	650	165	-	540	630	120	65	F 16	780	24	M30	806.5	24	1 1/2"	-	-	-	327.0
28"	700	700	165	-	570	665	120	65	F 25	840	24	M30	863.5	28	1 1/2"	840	24	M27	388.0
30"	750	750	190	-	595	695	140	80	F 25	900	24	M30	914.5	28	1 1/2"	-	-	-	462.0
32"	800	800	190	-	640	740	140	80	F 25	950	28	M30	978.0	28	1 1/2"	950	24	M30	607.0
36"	900	900	203	-	705	800	140	90	F 25	1050	28	M30	1086.0	32	1 1/2"	1050	28	M30	860.0
40"	1000	1000	216	-	675	865	140	90	F 25	1160	28	M36	1200.0	36	1 1/2"	1160	28	M33	1180.0
44"	1100	1100	254	-	830	925	170	120	F 30	1270	28	M36	1314.5	40	1 1/2"	-	-	-	1460.0
48"	1200	1200	254	-	890	990	170	120	F 30	1380	32	M36	1422.4	44	1 1/2"	1380	32	M36	1800.0
56"	1400	1400	280	-	950	1160	180	140	F 30	-	-	-	1651	48	1 1/2"	1590	36	M39	2045.0
64"	1600	1600	360	-	1100	1260	180	140	F 35	-	-	-	-	-	-	1820	40	M45	2570.0
72"	1800	1800	360	-	1200	1370	200	170	F 35	-	-	-	2095.5	60	1 1/2"	2020	44	M45	2895.0
80"	2000	2000	400	-	1275	1450	220	170	F 40	-	-	-	2230	48	1 1/2"	2230	48	M45	3120.0

Specification and design are subject to change without notice

HPF Series High-Performance Butterfly Valve / Flanged Type Dimension



VALVE DIMENSIONS

unit : mm

SIZE		d	L		H1	H2	H3	D	TOP FLANGE TYPE	JIS 10K			ANSI 150LB			BS 4504 PN 10			WEIGHT (APPROX.) (kg)
inch	mm		#150	#300						C	n	h	C	n	h	C	n	h	
2"	50	50	108	108	115	182	45	16	F 07	120	4	19	120.5	4	19	125	4	19	4.5
2.5"	65	65	112	112	130	200	45	16	F 07	140	4	19	139.5	4	19	145	4	19	5.5
3"	80	80	114	180	140	215	45	19	F 07	150	8	19	152.5	4	19	160	8	19	9.0
4"	100	100	127	190	160	232	45	19	F 07	175	8	19	190.5	8	19	180	8	19	10.0
5"	125	125	140	190	185	245	45	20	F 07	210	8	23	216.0	8	22	210	8	19	13.0
6"	150	150	140	210	190	260	45	20	F 07	240	8	23	241.5	8	22	240	8	23	17.0
8"	200	200	152	230	220	292	65	25	F 10	290	12	23	298.5	8	22	295	8	23	26.0
10"	250	250	165	250	270	353	65	32	F 10	355	12	25	362.0	12	25	350	12	23	40.0
12"	300	300	178	270	300	372	65	32	F 10	400	16	M22	432.0	12	25	400	12	23	68.0
14"	350	350	190	290	342	440	80	42	F 14	445	16	M22	476.0	12	29	460	16	M20	93.0
16"	400	400	216	310	380	460	80	42	F 14	510	16	M24	539.5	16	1"	515	16	M24	121.0
18"	450	450	222	330	402	492	120	50	F 16	565	20	M24	578.0	16	1 1/2"	565	20	M24	144.0
20"	500	500	229	350	432	552	120	50	F 16	620	20	M24	635.0	20	1 1/2"	620	20	M24	160.0
22"	550	550	229	350	465	572	120	65	F 16	680	20	M30	392.2	20	1 1/2"	-	-	-	228.0
24"	600	600	267	390	510	610	120	65	F 16	730	24	M30	749.5	20	1 1/2"	725	20	M27	284.0
26"	650	650	267	410	540	630	120	65	F 16	780	24	M30	806.5	24	1 1/2"	-	-	-	327.0
28"	700	700	292	430	570	665	120	65	F 25	840	24	M30	863.5	28	1 1/2"	840	24	M27	388.0
30"	750	750	292	450	595	695	140	80	F 25	900	24	M30	914.5	28	1 1/2"	-	-	-	462.0
32"	800	800	318	470	640	740	140	80	F 25	950	28	M30	978.0	28	1 1/2"	950	24	M30	607.0
36"	900	900	330	510	705	800	140	90	F 25	1050	28	M30	1086.0	32	1 1/2"	1050	28	M30	860.0
40"	1000	1000	410	550	675	865	140	90	F 25	1160	28	M36	1200.0	36	1 1/2"	1160	28	M33	1180.0
44"	1100	1100	410	550	830	925	170	120	F 30	1270	28	M36	1314.45	40	1 1/2"	-	-	-	1460.0
48"	1200	1200	470	630	890	990	170	120	F 30	1380	32	M36	1422.4	44	1 1/2"	1380	32	M36	1800.0
56"	1400	1400	280	950	950	1160	180	140	F 30	-	-	-	1651	48	1 1/2"	1590	36	M39	2045.0
64"	1600	1600	360	1100	1100	1260	180	140	F 35	-	-	-	-	-	-	1820	40	M45	2570.0
72"	1800	1800	360	1200	1200	1370	200	170	F 35	-	-	-	2095.5	60	1 1/2"	2020	44	M45	2895.0
80"	2000	2000	400	1275	1275	1450	220	170	F 40	-	-	-	2230	48	1 1/2"	2230	48	M45	3120.0

Specification and design are subject to change without notice