



# **D.H.C** CONTROL CO., LTD.

*Zero leakage triple offset metalseated butterfly valve*



**DH** DAE HAN CONTROL CO., LTD.



## PRODUCTS

METAL SEAT BUTTERFLY VALVE, HIGH TEMP, HIGH PRESSURE BALL VALVE  
CRYOGENIC VALVE, TAP WATER VALVE, SPECIAL VALVE etc.

 **DAE HAN CONTROL CO., LTD.**

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# D.H.C CONTROL CO., LTD.

People and Nature in harmony



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## GREETINGS

Based on our vast experiences and continuous research & development, Dae Han Control Co., Ltd. has become one of the leading manufacturers of metal seated valves.

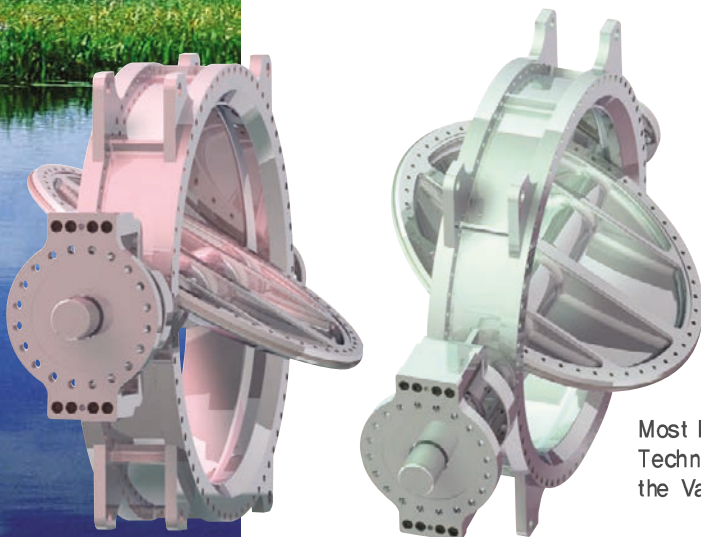
Power plant, Cogeneration, Petro-Chemical, Refining, Water and Waste Water Purification, Pulp & Paper, Marine, Steel and other Industrial process applications are some of the vast industries that we supply.

Throughout our history, we have endeavored to produce high quality products at competitive prices that meet and exceed customer's expectations.

Our desire is to make DHC valve a recognized standard in the valve industry. We would like to insure you that each of our products will be conforming to international standards such as ASME/ANSI, MSS, DIN, BS, JIS. Quality Assurance to ISO9001-2000, CE and API, will insure we maintain a high level of excellence to you our respected customer.

Thank you for your consideration.

President **Y. G. Kim**  
DAE HAN CONTROL CO., LTD.



Most Reliable Business and  
Technical Partner for  
the Valve Industry

# *The best of best D.H.C*



## BRIEF HISTORY

- Oct. 1995 • Established DAE HAN CONTROL.
  - Started manufacturing Butterfly and Check Valves.
  - Exported Valves to Japan.
- Oct. 1998 • Moved into New Factory at Sasang-Gu, Busan, Korea.
  - Produced Butterfly Valve of Metal Seat and Hi-Performance Type.
  - Exported Valves to South-East Asia.
- Jan. 2000 • Incorporated the company DAEHAN CONTROL CO.,LTD.
- Oct. 2000 • Moved into bigger Factory at Kamjeon-Dong, Sasang-Gu, Busan, Korea.
  - ISO 9001 Quality Management System Approved for Butterfly and Check Valves.
  - Supplied with POSCO, KEPCO and KHNP.
- Nov, 2002 • Moved into New Factory with bigger Space and Equipments at Songjeong-Dong, Kangseo-Ku, Busan City.
  - Started Producing Special Valves.
- Jan. 2005 • Registered vendor list on KEPCO for Butterfly Valves
- Jan. 2006 • Moved into Current Address at #1207-13, Busan Science Complex, Jisa-dong, Kangseo-gu, Busan, Korea.
- Jan. 2007 • Registered vander list on POSCO for Butterfly, Check, Ball and Gate Valves etc.
- Aug. 2007 • Fire Test Certificate Approved for Butterfly Valve
- Sept. 2007 • CE Certificate Approved for Butterfly and Check Valves.
- Oct. 2008 • API Certificate Approved for Butterfly Valve & Ball Valve.
- Dec. 2008 • Fire Test Certificate Approved for Ball Valve & Plug Valve.



# APPROVAL CERTIFICATES



- 1 CE CERT (CE 3444 / 3 / 2007-1)
- 2 ISO9001 CERT
- 3 LOW TORQUE GATE VALVE
- 4 AQUA SEAL VALVE(GAS CUT-OFF)
- 5 DOUBLE DISC TYPE AQUA SEAL VALVE(GAS CUT-OFF)
- 6 API CERT (609-0013 & 6D-0825)



- 9 BUTTERFLY VALVE FIRE SAFETY CERT
- 10 BALL VALVE FIRE SAFETY CERT
- 11 BALL VALVE FIRE SAFETY CERT
- 12 PLUG VALVE FIRE SAFETY CERT

## PRODUCTS



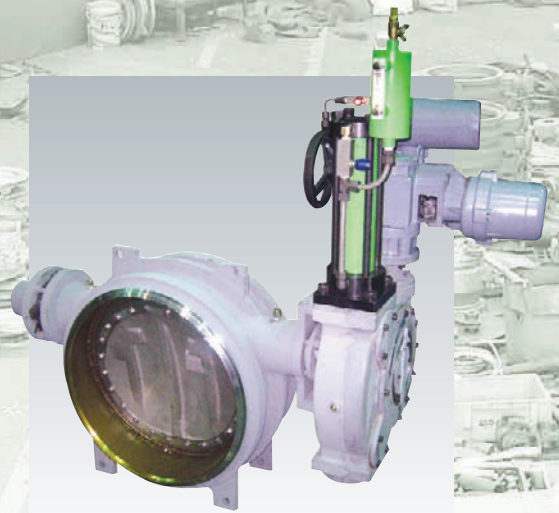
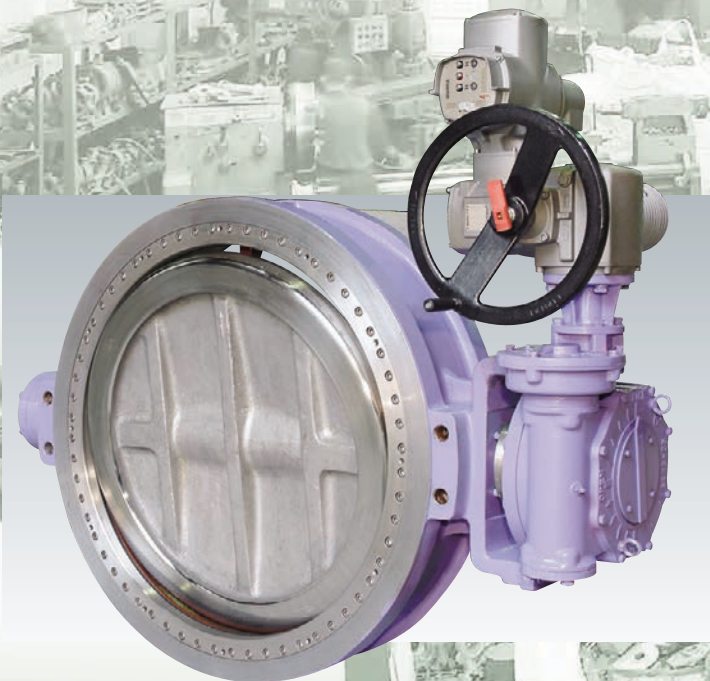
### Wafer Style Body

Size range: 3" to 100", (80mm to 2500mm)  
Temp. range: -100 degrees C to over 800 degrees C  
Flange rating: ANSI class 150 to ANSI class 600  
Flange drilling: ANSI, MSS, API, JIS, DIN, BS  
Face to face: API 609

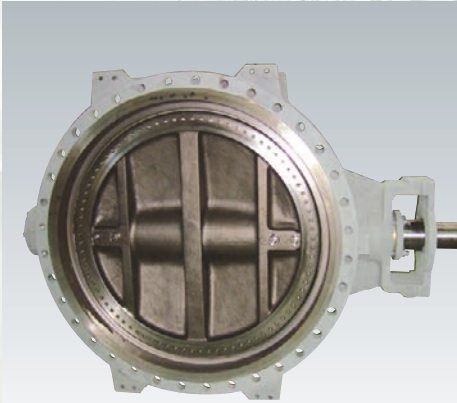


### Weld End

Size range: 3" to 100"  
Temp. range: -100 degrees C to over 800 degrees C  
Flange rating: ANSI class 150 to ANSI class 1500  
Flange drilling: ANSI, MSS, API, JIS, DIN, BS  
Face to face: ANSI



*Improve Quality in Order to Provide Customers*



**Double Flanged Body**

Size range: 3" to 120", (80mm to 3000mm)

Temp. range: -100 degrees C to over 800 degrees C

Flange ratings: ANSI class 150 to ANSI class 1500

Flange drilling: ANSI, MSS, API, JIS, DIN, BS

Face to face: ISO 5752, ANSI B16.10, DIN 3203



**Lugged Style Body**

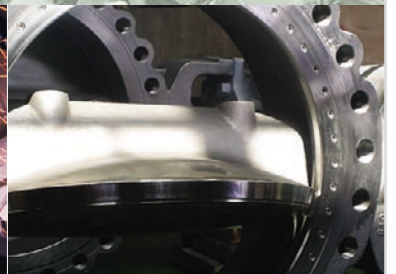
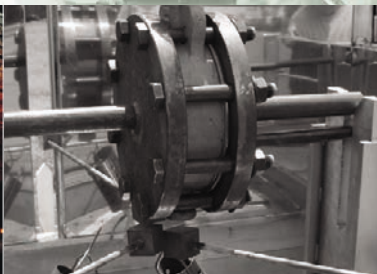
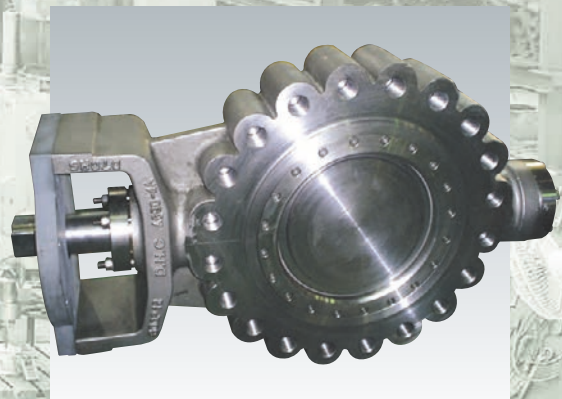
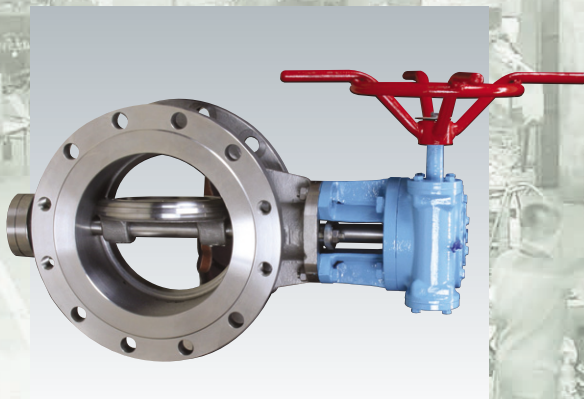
Size range: 3" to 100", (80mm to 2500mm)

Temp. range: -100 degrees C to over 800 degrees C

Flange rating: ANSI class 150 to ANSI class 600

Flange drilling: ANSI, MSS, API, JIS, DIN, BS

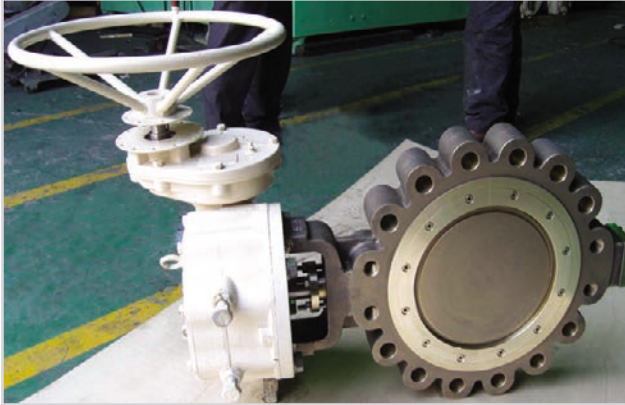
Face to face: API 609



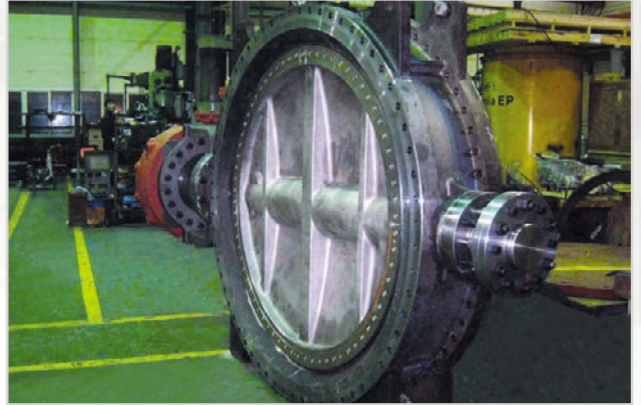
*with 100% Satisfaction.*



## PRODUCTS



FIRE SAFETY TYPE SEAT TRIPLE OFFSET BUTTERFLY VALVE ZERO LEAKAGE BI-DIRECTION TYPE 8"~60"



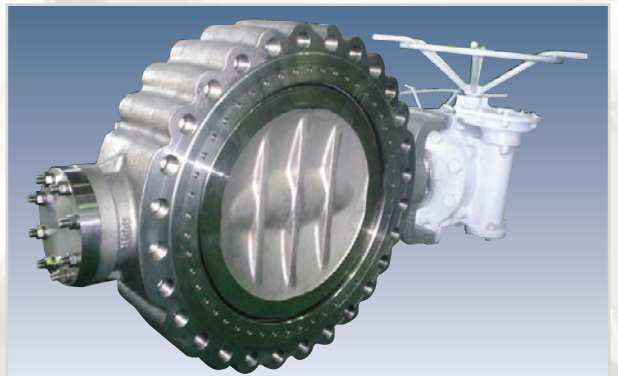
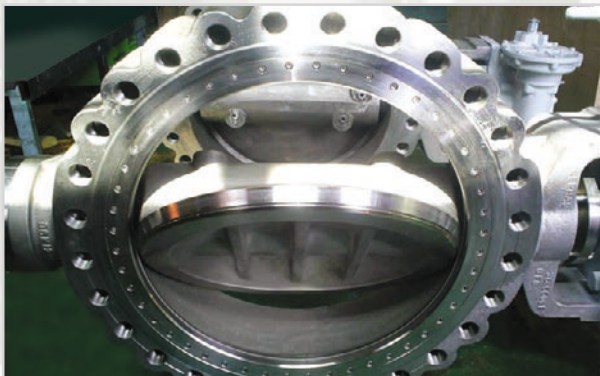
STEAM LINE METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE ZERO LEAKAGE UNI-DIRECTION TYPE 4"~160"

METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE ZERO LEAKAGE BI-DIRECTION TYPE 4"~160"



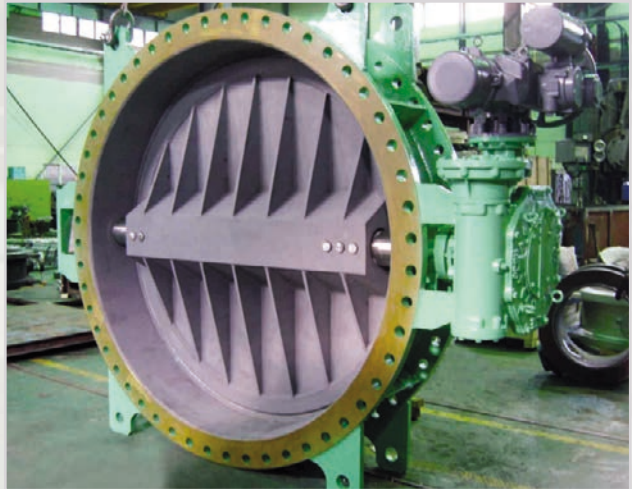
RUBBER LINED METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE ZERO LEAKAGE UNI-DIRECTION TYPE 1050A ETC. 4"~160"

METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE ZERO LEAKAGE UNI-DIRECTION TYPE 8"~60"





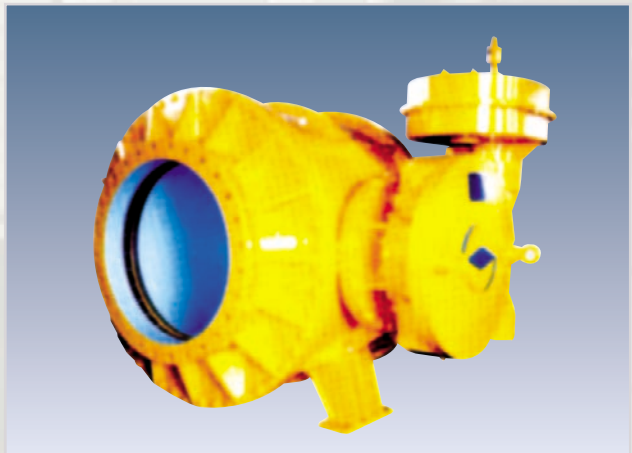
METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE ZERO LEAKAGE UNI-DIRECTION TYPE 4"~160"



BFC GAS LINE METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE ZERO LEAKAGE UNI-DIRECTION TYPE 4"~160"



HI-PRESSURE METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE ZERO LEAKAGE BI-DIRECTION TYPE 4"~160"



LARGE SIZE BALL VALVE TRUNION TYPE 4"~160"

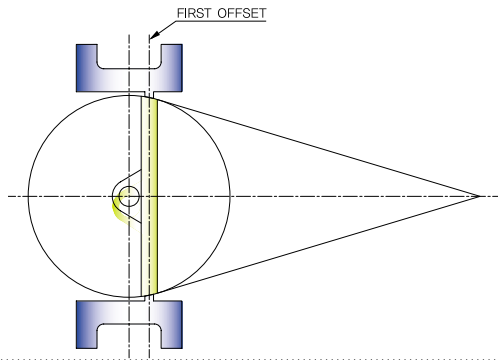


WAFER TYPE BUTTERFLY VALVE ZERO LEAKAGE BI-DIRECTION TYPE 4"~160"



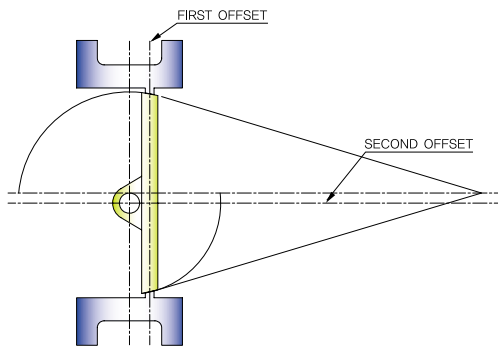
NON-SLAM CHECK VALVE TRIPLE OFFSET ZERO LEAKAGE 4"~160"

# TRIPLE OFFSET BUTTERFLY VALVE DESIGN



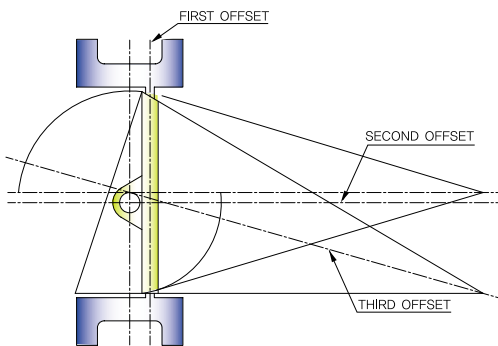
## SINGLE OFFSET

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



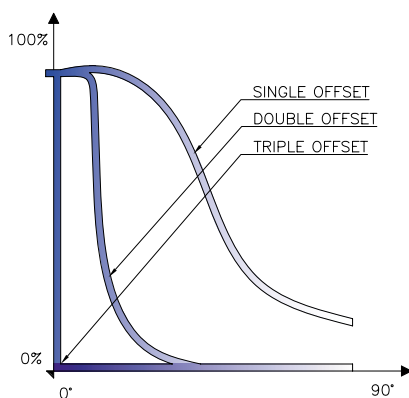
## DOUBLE OFFSET

The center of rotation is moved from the centerline of the valve body. The seat and seal design remains conical and on center. 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”.



## TRIPLE OFFSET

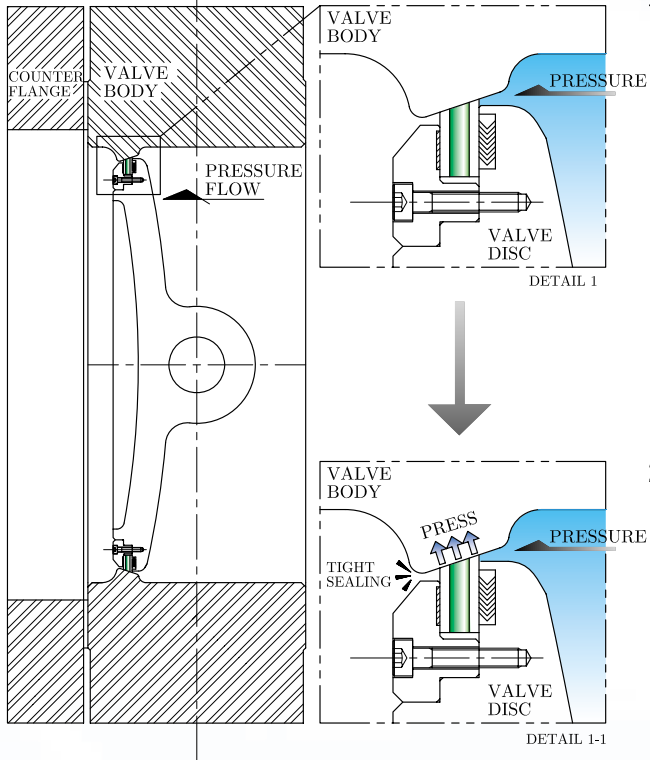
The centerline of the cone is rotated away from the valve centreline resulting in an ellipsoidal profile and providing the third offset. With this geometry, seat seal interference is completely eliminated ensuring long sealing life. The result is a torque seated, process pressure aided **FRictionless** 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.



## FRICION RATE

- Triple offset and ellipsoidal sealing geometry
- Bi-Directional bubble tight shut-off
- Inherently Firesafe by design
- Developed Geometry results in
  - Zero Seat/Seal Friction
  - Low Torques
  - Extended Service Life
  - Continued Seal through Thermal Cycling
  - Torque Seating
- 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
  - Less than 50ppm on Fugitive Emission Test to cover EPA21

## UNI-DIRECTION DESIGN (DHC-BTMN SERIES)



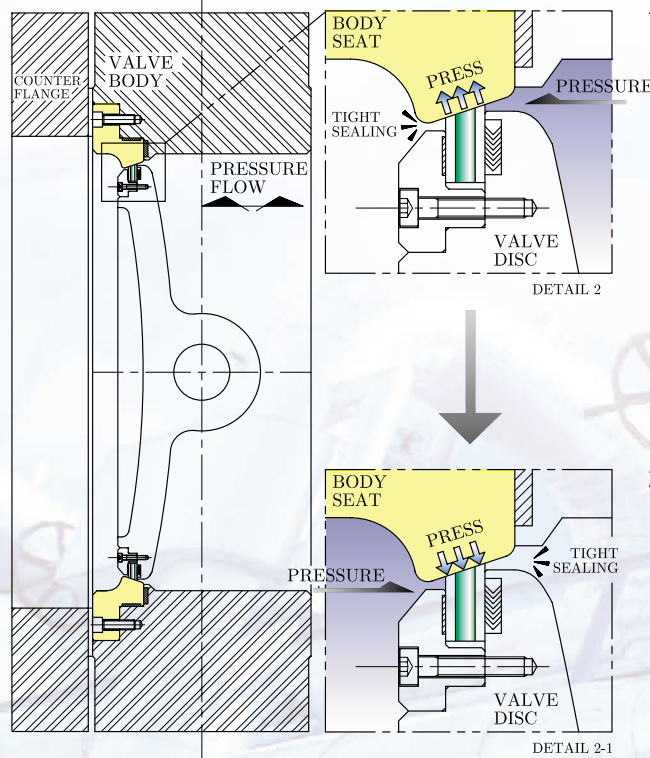
1. As you see the detail 1, this is the structure of inserting seal into disc. There is few changing of seal in the high pressure, and low torque due to small sealing surface.

2. As you see the detail 1-1, the seal in the disc is stuck on body seat surface under the pressure condition.

### Features

- Zero leakage
- Metal seated
- Bi-directional
- Inherently Firesafe
- Low operating torques
- Torque seated
- Continued sealing through thermal cycling
- Zero seat/seal friction
- Extended service life
- Excellent flow and throttling characteristics
- Excellent control of fugitive emissions
- Quarter turn operation

## BI-DIRECTION DESIGN (DHC-BTMS SERIES)



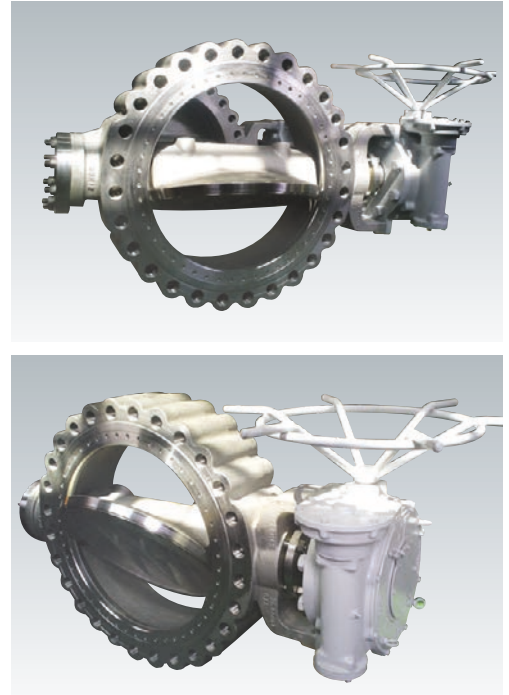
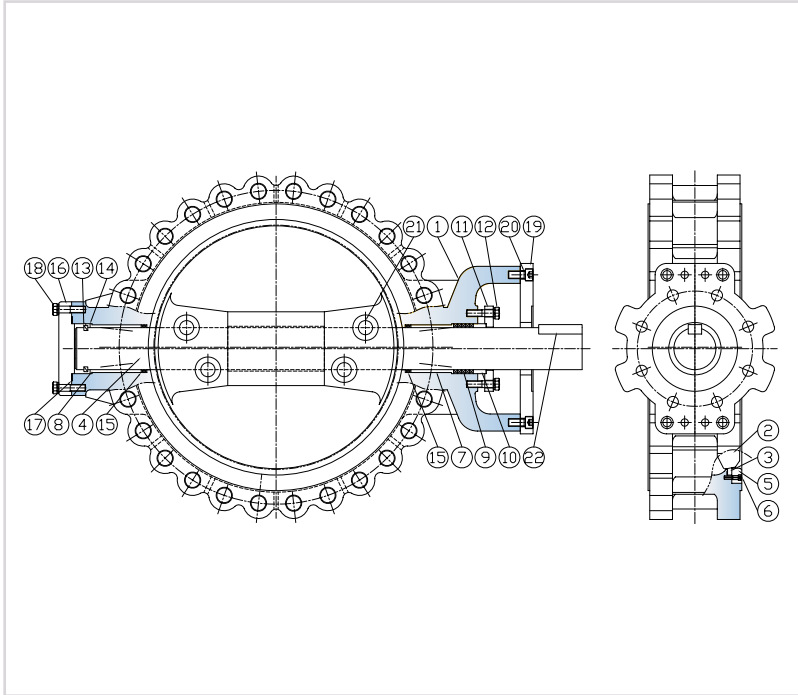
1. As you see the detail 2, this structure has seats both body and disc. This tight sealing can be ensured by the very close contact between the body seat and disc seat, under a flow direction pressure.

2. As you see the detail 2-1, the tight sealing can be ensured by the very close contact between the body seat and disc seat, under a reverse flow direction pressure.

### Design Standard Specifications

- Design: ASME / ANSI B16.34, API 609, BS 5155, DIN 3840, JIS
- Fire safe: API 607, API 6FA, BS 6755
- Pressure Temperature ratings: ASME/ANSI B16.34
- Body & Seat Pressure Test: API Std. 598, API 6D, ISO 5208
- Seat leakage test: ANSI B16.104 class VI
- Flange drilling: ANSI B16.5, ANSI B16.47, MSS SP-44, DIN, JIS, BS
- Face to Face: ISO 5752, ANSI B16.10, API 609, BS 5155
- Marking: MSS SP-25

# TRIPLE OFFSET BUTTERFLY VALVE SPECIFICATION



ITEM NO	DESCRIPTION	STANDARD GENERAL SPEC CLEAN WATER & SOUR GAS STEAM & ALL NORMAL CONDITION	ALL SCOPE LOW OR HIGH TEMP' FLUID OF ALL SCOPE & SEA WATER & CORROSIVE MEDIA
1	BODY	A216 WCB/ A351 CF8M	BY A PLAN IT SELECTS.
2	DISC	A216 WCB/ A351 CF8M	
3	BODY SEAT	LAMINATED STAINLESS STEEL+ GRAPHITE	
4	SHAFT	STAINLESS STEEL (316/ 630/420/ 410/ ETC)	
5	BODY SEAT RETAINER	STAINLESS STEEL (304/316/316L)	
6	RETAINER BOLT	STAINLESS STEEL (304/316/316L)	
7	MAIN BUSH	B148/ B584/ OILESS/ STAINLESS	
8	STUB BUSH	B148/ B584/ OILESS/ STAINLESS	
9	PACKING	GRAPHITE	
10	PACKING BUSH	B148/ B584/ STAINLESS	
11	PACKING GLAND	STAINLESS STEEL (304/316/316L)	
12	STUD BOLT & NUT	STAINLESS STEEL (304/316/316L)	
13	SHAFT RING	B148/ B584/ STAINLESS	
14	SHAFT RING HOLDER	STAINLESS STEEL (304/316/316L)	
15	DUST SEAL	GRAPHITE	
16	END COVER	CAST CARBON STEEL/ STAINLESS STEEL	
17	END COVER GASKET	GRAPHITE/ SPIRAL WOUND GASKET	
18	END COVER BOLT	STAINLESS STEEL (304/316/316L)	
19	TOP FLANGE	CARBON STEEL	
20	FLANGE BOLT	STAINLESS STEEL (304/316/316L)	
21	LOCK PIN & TAPER PIN	STAINLESS STEEL (316/ 630/420/ 410/ ETC)	
22	KEY	STEEL	

※ AVAILABLE MATERIAL (DUPLEX, AL-BRONZE, INCONEL, MONEL, ETC)

# TRIPLE OFFSET BUTTERFLY VALVE TORQUE TABLE

VALVE SIZE	CLASS 150Lb(20 BAR G)	
	PREFERRED DIRECTION	
	UNSEATING (N.m)	SEATING (N.m)
2	60	50
3	95	79
4	162	135
5	253	211
6	364	304
8	737	614
10	1187	989
12	1835	1524
14	2670	2225
16	3712	3094
18	4984	4153
20	6506	5422
24	10389	8658
28	15535	12946
30	18636	15530
32	22119	18433
36	30319	25265
40	40311	33592
42	46035	38363
48	66393	55327

VALVE SIZE	CLASS 300Lb(52 BAR G)	
	PREFERRED DIRECTION	
	UNSEATING (N.m)	SEATING (N.m)
2	96	80
3	260	217
4	412	351
5	658	548
6	1028	857
8	1972	1643
10	3307	2756
12	5088	4240
14	7369	6141
16	10205	8504
18	13699	11375
20	17759	14799
24	28189	23491

VALVE SIZE	CLASS 600Lb(100 BAR G)	
	PREFERRED DIRECTION	
	UNSEATING (N.m)	SEATING (N.m)
3	518	432
4	878	732
6	2132	1777
8	4069	3390
10	6791	5659
12	10404	8670
14	15012	12510
16	20719	17266
18	27630	23025
20	35850	29875
24	56634	47195

## TRIPLE OFFSET BUTTERFLY VALVE TORQUE TABLE

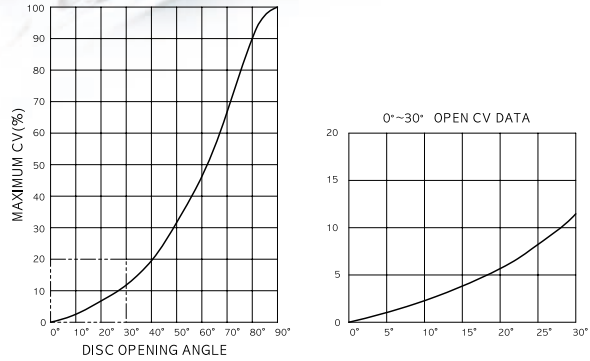
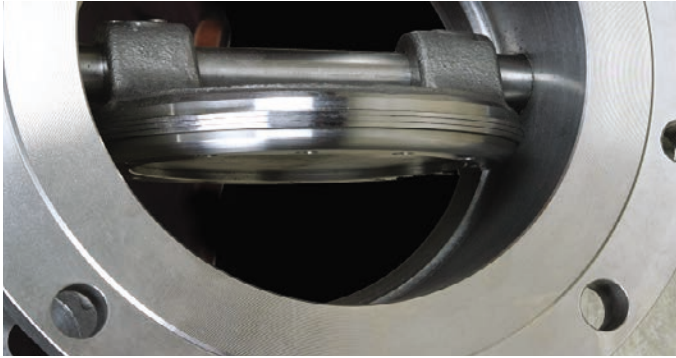
VALVE SIZE	CLASS 900Lb(150 BAR G)	
	PREFERRED DIRECTION	
	UNSEATING (N.m)	SEATING (N.m)
3	777	647
4	1422	1185
6	3432	2860
8	6518	5432
10	10835	9029
12	16539	13782
14	23786	19822
16	32733	27278
18	43537	36281
20	56354	46962
24	88654	73879

VALVE SIZE	CLASS 1500Lb(255 BAR G)	
	PREFERRED DIRECTION	
	UNSEATING (N.m)	SEATING (N.m)
6	5835	4862
8	11080	7233
10	18417	15348
12	28112	23427
14	40430	33692
16	55635	46364
18	73997	61664
20	95777	79814
24	150660	125550

- Contact the sales office for torque figures not shown above.
- DHC suggests a minimum of 20% Safety Factor on the above torques.
- Although the valves are suitable for Bi-Directional use, the offset geometry creates a Preferred direction of flow which if used(for uni-directional flow) can show a torque and actuator size reduction.
- Run torques are 40% of the Preferred direction Opening torque.
- Torques shown are valid for temperatures of  $-100^{\circ}\text{C}(-148^{\circ}\text{F})$  to  $+538^{\circ}\text{C}(+1000^{\circ}\text{F})$  For temperatures outside this range consult DHC.
- Torques shown assume a maximum liquid velocity(pipe line) of 5 m/s. For higher liquid velocity, where hydrodynamic torque may need to be considered, consult DHC.
- Please ensure that any actuator chosen to operate the DHC valve is capable of supplying 5° over-travel and has mechanical limit stops controlling the closed position.
- Note that operators must be dowelled to the valve mounting plate. Dowels will be supplied with bare shaft valves but it is the purchasers responsibility to ensure separately purchased operators and mounting kits are machined to accommodate these dowels.
- If in doubt, contact the sales office.

TORQUE CONVERSION FACTORS				
N m	kN m	kgf m	lbf in	lbf ft
1	0.001	0.102	8.85	0.738
1000	1	101.972	8851	737.6
9.807	.0098	1	86.8	7.233
0.113	$1.13 \times 10^{-4}$	0.01155	1	0.083
1.356	0.0014	0.138	12	1

# TRIPLE OFFSET BUTTERFLY VALVE 'CV' VALUES



FLOW GRAPH

## 150LB MANUAL GEAR OPERATING TYPE

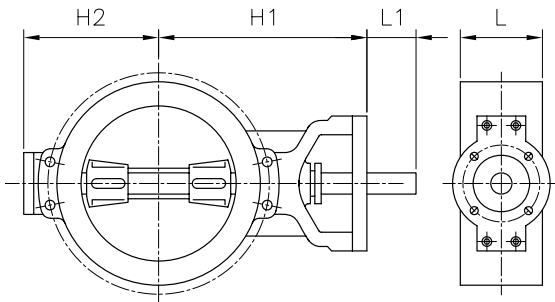
SIZE		5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
mm	inch																		
80	3	1	6	14	23	31	39	47	54	62	71	82	96	112	128	143	156	163	165
100	4	2	12	26	42	57	72	85	98	113	130	150	176	205	234	262	285	299	302
150	6	16	31	45	59	76	101	134	178	233	297	369	448	531	616	698	758	796	800
200	8	30	57	82	108	140	185	246	327	427	544	676	821	974	1130	12810	1390	1460	1460
250	10	52	99	142	187	242	320	426	566	739	942	1170	1420	1690	1960	2220	2410	2530	2530
300	12	78	147	212	279	362	478	636	846	1100	1410	1750	2120	2520	2920	3310	3600	3780	3780
350	14	106	201	289	380	493	651	866	1150	1500	1920	2380	2890	3430	3980	4510	4890	5140	5140
400	16	165	313	451	594	769	1020	1350	1800	2350	2990	3720	4510	5350	6210	7040	7640	8020	8020
450	18	217	413	594	782	1010	1340	1780	2370	3090	3940	4890	5940	7050	8180	9270	10100	10600	10600
500	20	268	509	733	965	1250	1650	2200	2920	3820	4860	6040	7340	8710	10100	11400	12400	13000	13000
600	24	386	734	1060	1390	1800	2380	3170	4210	5500	7000	8700	10600	12500	14500	16500	17900	18800	18800
700	28	559	1060	1530	2010	2610	3450	4590	6100	7960	10100	12600	15300	18200	21100	23900	25900	27200	27200
750	30	630	1200	1720	2270	2940	3880	5160	6870	8960	11400	14200	17200	20400	23700	26900	29200	30700	30700
800	32	719	1370	19710	2590	3360	4440	5900	7840	10200	13000	16200	19700	23300	27100	30700	33300	35000	35000
900	36	884	1680	2420	3180	4120	5450	7250	9630	12600	16000	19900	24200	28700	33300	37700	40900	43000	43000
1000	40	1170	2220	3190	4210	5450	7210	9580	12700	16600	21200	26300	31900	37900	44000	49800	54100	56900	56900
1050	42	1230	2340	3370	4440	5760	7610	10100	13400	17600	22400	27800	33700	40000	46500	52600	57100	60000	60000
1200	48	1640	3120	4490	5920	7670	10100	13500	17900	23400	29800	37000	45000	53400	61900	70100	76100	80000	80000

## 300LB MANUAL GEAR OPERATING TYPE

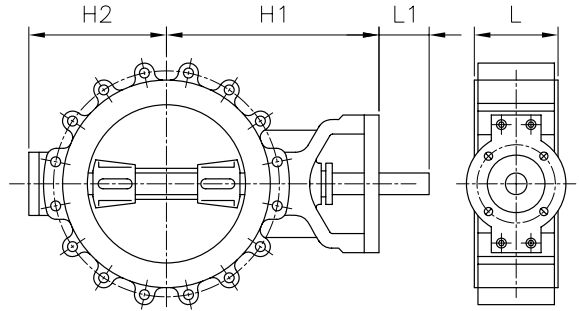
SIZE		5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
mm	inch																		
80	3	1	6	14	23	31	39	47	54	62	71	82	96	112	128	143	156	163	165
100	4	2	12	26	42	57	72	85	98	113	130	150	176	205	234	262	285	299	302
150	6	6	25	41	54	69	91	121	162	212	268	334	407	482	559	634	689	725	725
200	8	11	45	74	98	126	166	222	298	389	492	613	746	884	1030	1160	1260	1330	1330
250	10	19	82	135	178	229	301	402	540	705	891	1110	1350	1600	1860	2110	2290	2410	2410
300	12	29	122	202	266	342	450	601	807	1050	1330	1660	2020	2400	2780	3150	3420	3600	3600
350	14	39	167	274	363	466	613	818	1100	1430	1810	2260	2750	3260	3780	4290	4660	4900	4900
400	16	58	248	408	539	692	910	1220	1630	2130	2690	3360	4090	4840	5610	6370	6920	7280	7280
450	18	77	326	537	710	911	1200	1600	2150	2810	3550	4420	5380	6380	7400	83920	910	9590	9590
500	20	95	403	663	876	1130	1480	1980	2650	3460	4380	5460	6640	7880	9130	10400	11300	11800	11800
600	24	136	580	955	1260	1620	2130	2850	3820	4990	6310	7860	9570	11300	13100	14900	16200	17100	17100
700	28	199	844	1390	1840	2360	3100	4150	5560	7260	9190	11400	13900	16500	19100	21700	23600	24800	24800
750	30	232	986	1620	2150	2750	3620	4840	6490	8480	10700	13400	16300	19300	22400	25400	27500	29000	29000
800	32	261	1110	1830	2420	3100	4080	5450	7310	9550	12100	15000	18300	21700	25200	28600	31000	32600	32600
900	36	332	1410	2320	3070	3940	5190	6930	9300	12100	15400	19100	23300	27600	32000	36300	39400	41500	41500
1000	40	399	1700	2790	3690	4740	6230	8330	11200	14600	18400	23000	28000	33200	38400	43600	47400	49900	49900
1050	42	457	1940	3200	4230	5430	7140	9540	12800	16700	21100	26300	32000	38000	44000	50000	54200	57100	57100
1200	48	480	2040	33600	4440	5700	7500	10000	13400	17500	22200	27700	33700	39900	46300	52500	57000	60000	60000



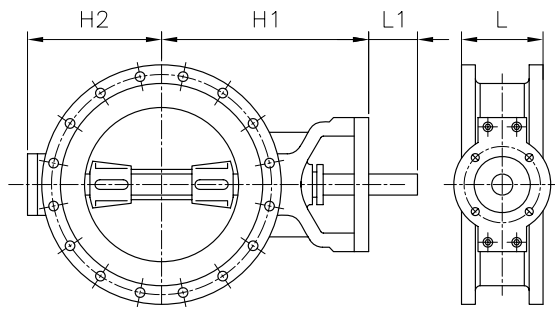
# TRIPLE OFFSET BUTTERFLY VALVE DIMENSION TABLE(mm)



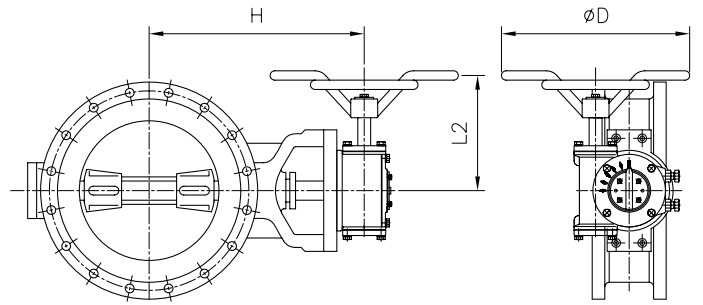
WAFER TYPE



LUG TYPE



DOUBLE FLANGE TYPE

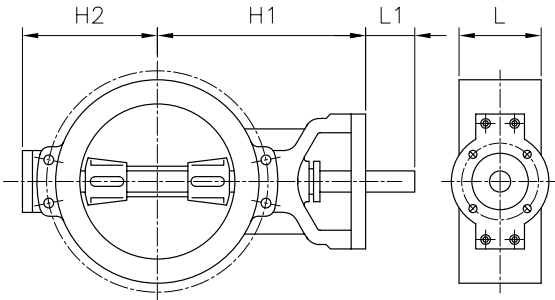


MANUAL GEAR OP

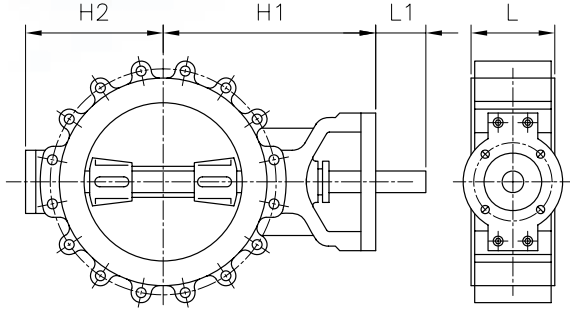
## 150LB MANUAL GEAR OPERATING TYPE

SIZE		H APPROX	H1 APPROX	H2 APPROX	L1	1 L (F TO F)			L2	ØD	※WEIGHT:Kg(APPROX)		
mm	inch					WAFER	LUG	FLANGE			WAFER	LUG	FLANGE
80	3		165	127	35	48	48	114	206	300	20	21	32
100	4		200	150	35	54	54	127	206	300	20	21	37
150	6	300	245	180	35	57	57	140	206	300	20	22	48
200	8	310	260	195	35	64	64	152	206	300	45	47	89
250	10	335	285	225	65	71	71	165	206	300	57	61	112
300	12	390	335	265	80	81	81	178	230	400	85	91	161
350	14	420	365	290	80	92	92	190	230	400	133	142	228
400	16	500	435	340	80	102	102	216	279	450	186	199	303
450	18	515	452	360	80	114	114	222	279	450	213	229	364
500	20	565	500	395	80	127	127	229	312	560	334	364	499
600	24	635	570	465	110	154	154	267	312	560	455	492	699
700	28	775	685	570	130	165	165	292	371	630	718	777	860
750	30	785	695	600	130	165	165	318	371	630	864	934	1085
800	32	840	750	630	130	190	190	318	425	710	1090	1119	1241
900	36	910	820	690	160	200	200	330	425	710	1418	1553	1716
1000	40	925	835	720	175	216	216	410	425	710	1743	1943	2208
1050	42	980	860	750	175	251	251	410	513	800	2108	2343	2488
1200	48	1140	1020	845	200	276	276	470	513	800	3004	3284	3440

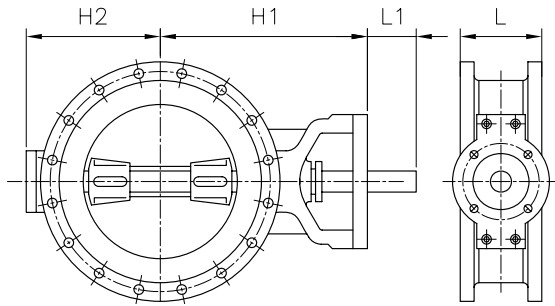
FLANGE RATING-ACCORDING TO ANSI B 165 /ASME 16.47 SERIES "A" & "B" /DIN/BS/ JIS/ USER SPEC  
 ※1 FACE TO FACE DIMENSION-ACCORDING TO MAKER STANDARD.  
 ※2 EXCEPT ACTUATOR



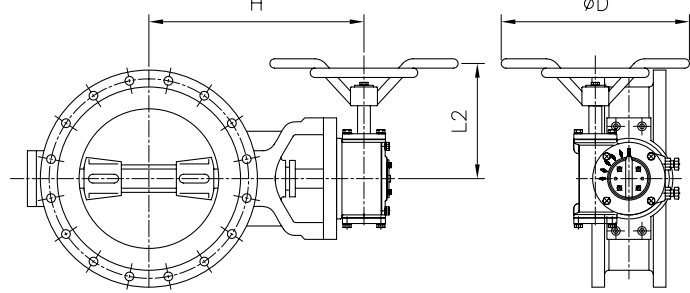
WAFER TYPE



LUG TYPE



DOUBLE FLANGE TYPE



MANUAL GEAR OP

### 300LB MANUAL GEAR OPERATING TYPE

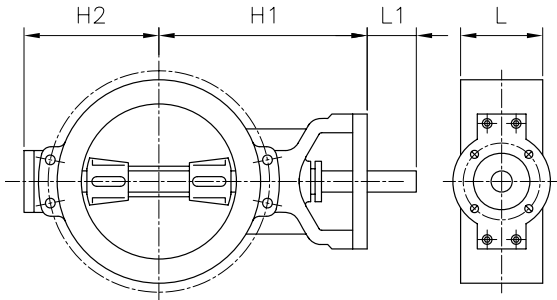
SIZE		H APPROX	H1 APPROX	H2 APPROX	L1	1 L (F TO F)			L2	ØD	*WEIGHT:Kg(APPROX)		
mm	inch					WAFER	LUG	FLANGE			WAFER	LUG	FLANGE
80	3		165	127	35	40	48	114	206	300	20	21	36
100	4		200	151	35	54	54	127	206	300	20	21	46
150	6	330	280	199	65	59	59	140	206	300	36	39	76
200	8	350	295	218	80	73	73	152	230	400	51	56	93
250	10	395	340	251	80	83	83	165	230	400	100	112	164
300	12	450	395	296	80	92	92	178	230	400	134	150	222
350	14	490	425	331	80	117	117	190	279	450	196	229	298
400	16	545	480	377	110	133	133	216	279	450	232	277	357
450	18	605	540	410	110	149	149	222	312	560	360	433	499
500	20	645	580	440	130	159	159	229	312	560	457	549	621
600	24	740	650	515	130	181	181	267	371	630	670	805	916
700	28	910	820	640	200	229	229	292	371	630	1193	1363	1417
750	30	940	850	690	200	241	241	318	425	710	1463	1658	1715
800	32	970	880	720	200	241	241	318	425	710	1661	1856	1957
900	36	1050	960	780	200	260	260	330	425	710	2281	2511	2590
1000	40	1110	990	800	200	300	300	410	513	800	2214	2425	2585
1050	42	1160	1050	840	200	300	300	410	513	800	2439	2649	2849
1200	48	1270	1150	950	250	320	320	470	536	900	3384	3684	4106

FLANGE RATING-ACCORDING TO ANSI B 16.5 / ASME 16.47 SERIES "A" & "B" / DIN / BS / JIS / USER SPEC

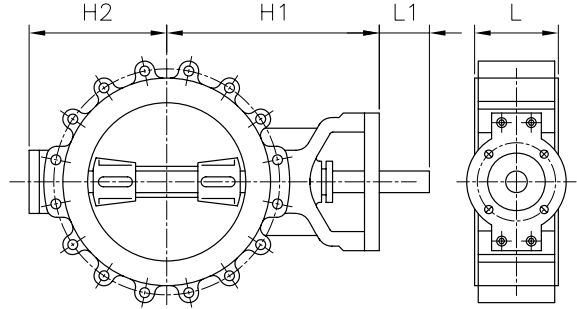
\*1 FACE TO FACE DIMENSION-ACCORDING TO MAKER STANDARD.

\*2 EXCEPT ACTUATOR

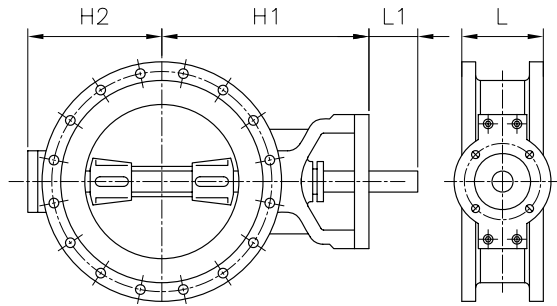
# TRIPLE OFFSET BUTTERFLY VALVE DIMENSION TABLE(mm)



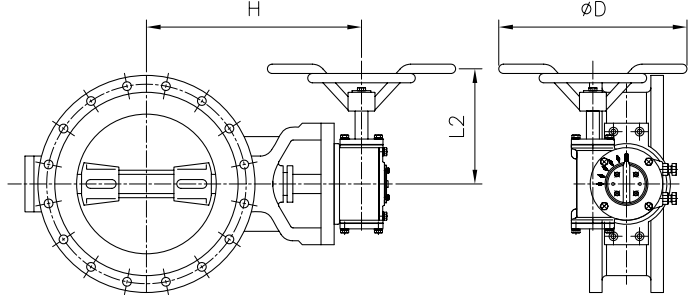
WAFER TYPE



LUG TYPE



DOUBLE FLANGE TYPE



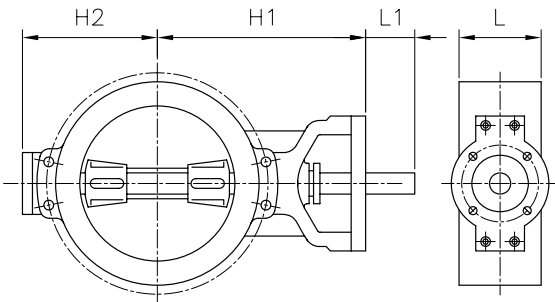
MANUAL GEAR OP

## 600LB MANUAL GEAR OPERATING TYPE

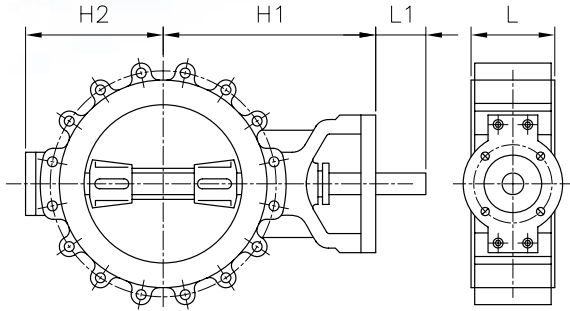
SIZE		H APPROX	H1 APPROX	H2 APPROX	L1	1 L (F TO F)			L2	ØD	*WEIGHT:Kg(APPROX)		
mm	inch					WAFER	LUG	FLANGE			WAFER	LUG	FLANGE
80	3		210	154	45	54	54	180	230	400	15	16	43
100	4		215	166	45	64	64	190	230	400	28	30	69
150	6	365	310	238	80	78	78	210	230	400	65	72	135
200	8	380	325	248	80	102	102	230	230	400	92	102	162
250	10	465	400	316	80	117	117	250	279	450	134	187	268
300	12	520	455	349	110	140	140	270	312	560	224	259	369
350	14	535	470	374	110	155	155	290	312	560	285	329	364
400	16	675	585	474	130	178	178	310	371	630	455	520	632
450	18	715	625	476	130	200	200	330	371	630	555	635	739
500	20	760	670	504	130	216	216	350	425	710	694	804	879
600	24	840	750	55	180	232	232	390	425	710	1093	1243	1423
700	28												
750	30												
800	32												
900	36												
1000	40												
1050	42												
1200	48												

PLEASE CONTACT THE SALES OFFICE.

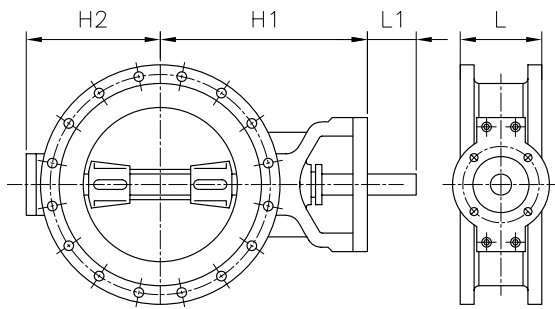
FLANGE RATING—ACCORDING TO ANSI B 16.5/ASME 16.47 SERIES "A" & "B"/DIN/BS/JIS/USER SPEC  
 ※1 FACE T O FACE DIMENSION—ACCORDING TO MAKER STANDARD.  
 ※2 EXCEPT ACTUATOR



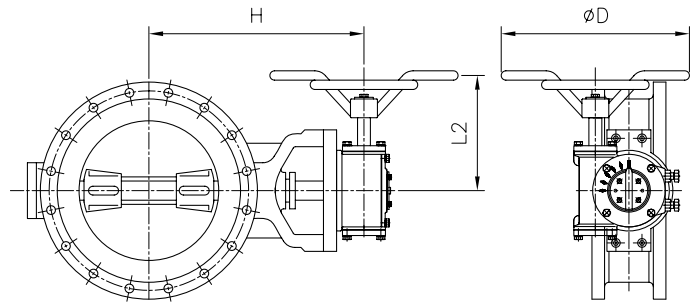
WAFER TYPE



LUG TYPE



DOUBLE FLANGE TYPE



MANUAL GEAR OP

## 900LB MANUAL GEAR OPERATING TYPE

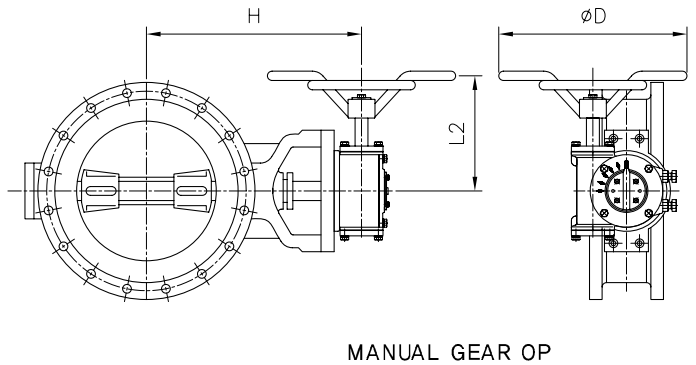
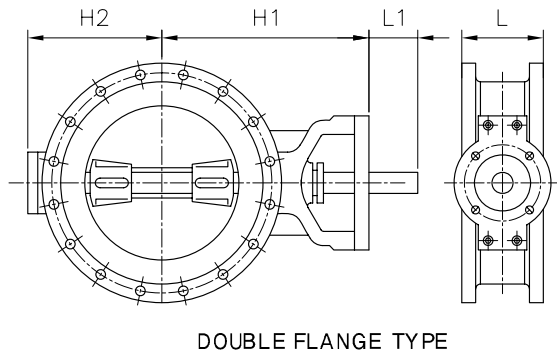
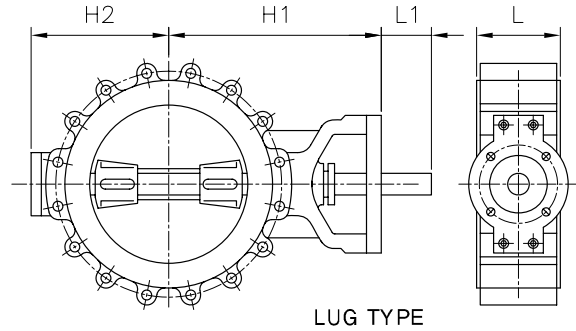
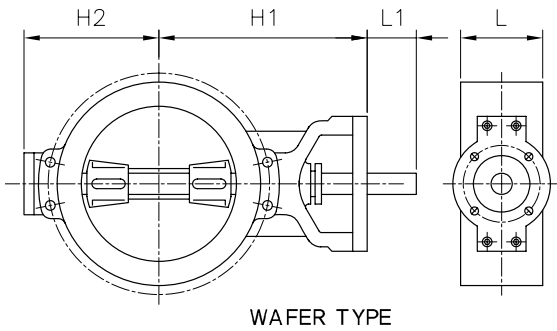
SIZE		H APPROX	H1 APPROX	H2 APPROX	L1	1 L (F TO F)			L2	ØD	※WEIGHT:Kg(APPROX)		
mm	inch					WAFER	LUG	FLANGE			WAFER	LUG	FLANGE
150	6	400	335	238	80	104	104	250	279	450	89	100	184
200	8	445	380	281	80	112	112	310	312	560	134	151	256
250	10	500	435	358	110	135	135	350	312	560	224	256	425
300	12	590	500	383	110	170	170	380	371	630	298	352	496
350	14	635	545	419	130	173	173	400	371	630	376	440	656
400	16	730	640	455	130	210	210	430	425	710	570	663	834
450	18	780	690	503	180	228	228	460	425	710	691	824	1044
500	20	830	710	550	180	250	250	490	513	800	905	1069	1273
600	24	950	820	656	200	275	275	530	513	800	1317	1704	2506
700	28	PLEASE CONTACT THE SALES OFFICE											
750	30												
800	32												
900	36												
1000	40												
1050	42												
1200	48												

FLANGE RATING-ACCORDING TO ANSI B 16.5 / ASME 16.47 SERIES "A" & "B" / DIN / BS / JIS / USER SPEC

※1 FACE TO FACE DIMENSION-ACCORDING TO MAKER STANDARD.

※2 EXCEPT ACTUATOR

# TRIPLE OFFSET BUTTERFLY VALVE DIMENSION TABLE(mm)



## 1500LB MANUAL GEAR OPERATING TYPE

SIZE		H APPROX	H1 APPROX	H2 APPROX	L1	1 L (F TO F)			L2	ØD	*WEIGHT:Kg(APPROX)		
mm	inch					WAFER	LUG	FLANGE			WAFER	LUG	FLANGE
150	6	435	370	257	110	160	160	290	312	560	124	175	207
200	8	520	430	307	110	180	180	330	371	630	202	237	406
250	10	630	540	371	130	200	200	390	371	630	282	379	646
300	12	665	575	414	130	230	230	430	425	710	360	605	842
350	14	740	650	493	180	250	250	470	425	710	589	849	1163
400	16	820	700	530	200	265	265	510	513	800	614	995	1476
450	18	920	800	591	200	300	300	550	513	800	992	1478	1968
500	20	975	850	664	200	340	340	630	536	900	1597	2248	2782
600	24	1125	1000	780	250	400	400	710	536	900	1792	3021	4288
700	28												
750	30												
800	32												
900	36												
1000	40												
1050	42												
1200	48												

PLEASE CONTACT THE SALES OFFICE.

FLANGE RATING—ACCORDING TO ANSI B 16.5/ASME 16.47 SERIES "A" & "B"/DIN/BS/JIS/USER SPEC

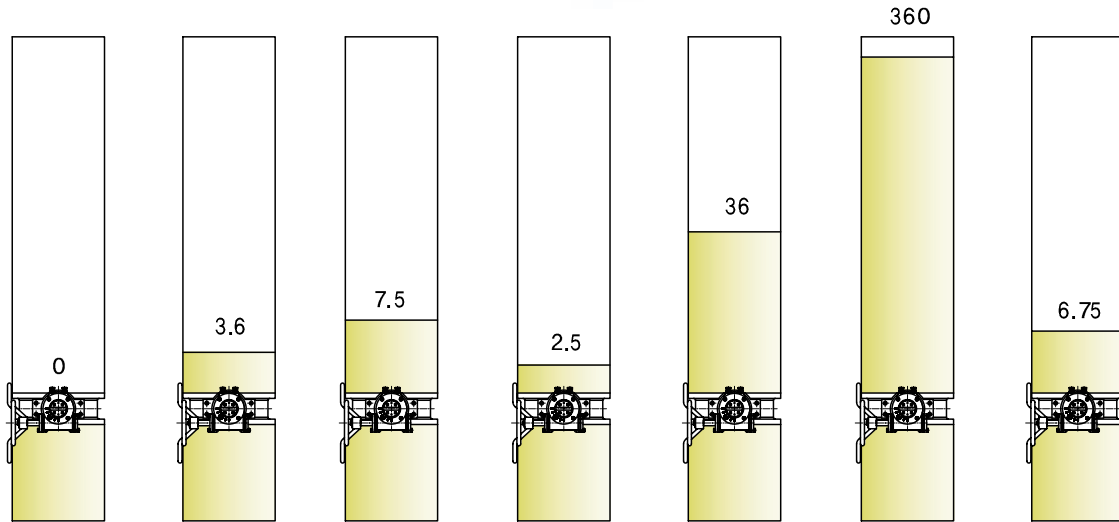
\*1 FACE T O FACE DIMENSION—ACCORDING TO MAKER STANDARD.

\*2 EXCEPT ACTUATOR

# LEAKAGE RATE BY STANDARD(REFERENCE)

## ■ GAS TEST

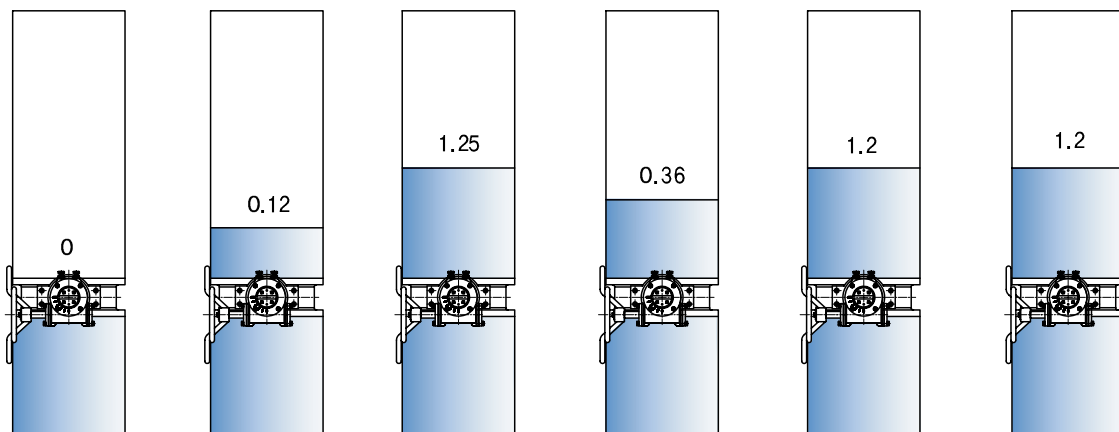
Valve Size: 200mm, Unit : cc/min



Std	ISO 5208 RATE A	ISO 5208 RATE B	API 598	API 598	ISO 5208 RATE C	ISO 5208 RATE D	ANSI B 16, 105 CLASS VI
Press	6±1bar	6±1bar	4~7bar	4~7bar	6±1bar	6±1bar	

## ■ HYDROSTATIC TEST

Valve Size: 200mm, Unit : cc/min

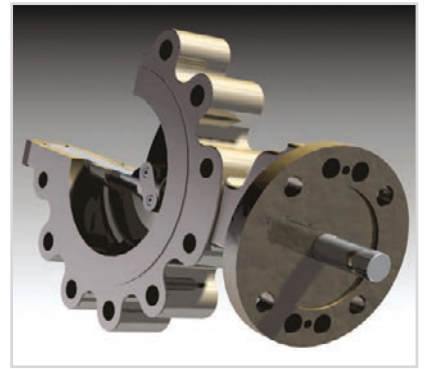


Std	ISO 5208 RATE A	ISO 5208 RATE B	API 598	ISO 5208 RATE C	ISO 5208 RATE D	ANSI B 16, 105 CLASS VI
Press	Max. working Pressure×1.1	Max. working Pressure×1.1	Design Pressure×1.1	Max. working Pressure×1.1	Max. working Pressure×1.1	Max. working Pressure(20bar)

## CRYOGENIC/HIGH TEMP BUTTERFLY VALVE DESIGN FEATURES

### PRODUCT

- RESILIENT SEAT BUTTERFLY
- METAL SEAT BUTTERFLY
- TRIPLE OFFSET TYPE
- HI-PERFORMANCE TYPE
- CONCENTRIC TYPE
- FLANGE, LUG, WAFER, WELDED
- API609 REGISTRATION
- ALL BUTTERFLY VALVES



CRYOGENIC / HIGH TEMP LUGGED TYPE

### SIZE RANGE

- DN150~DN4000

### PRESSURE RATING

- ANSI150LB-900LB
- DIN/BS PN6~PN100
- JIS/KS
- ETC

### TEMPERATURE RATING

- FROM -196°C TO 800°C  
(FROM -320.8°F TO 1472°F)

### CRYOGENIC TESTER

DAEHAN CONTROL's equipments for EXTREMELY LOW TEMPERATURE can maximize its test abilities by detecting various kinds of distortions and leakages of valves in condition of extremely low temperature through the real time data from external monitor.

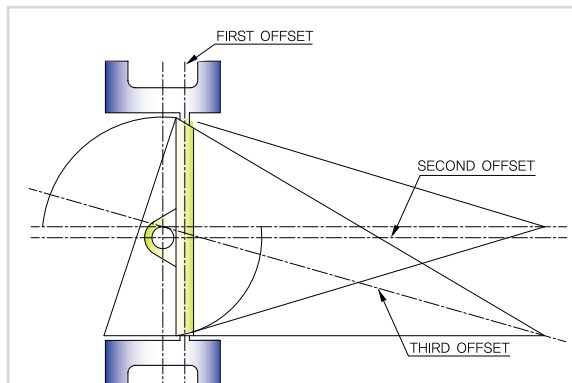
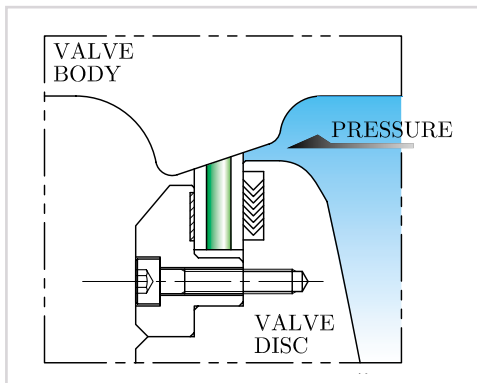


### QUALITY ASSURANCE SYSTEM

- ISO9001
- API609/6D/Q1

### TRIPLE OFFSET SEAT (CRYOGENIC/HIGH TEMP)

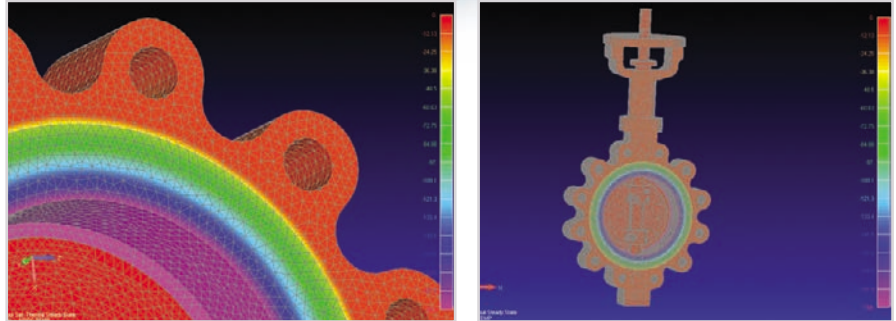
CRYOGENIC PCTFE LAMINATED SEAT type triple offset valve can secure its sealing from leakage in sealing parts by its resilient adjustment of CRYOGENIC PCTFE LAMINATED SEAT in case of contractions in EXTREMELY LOW TEMPERATURE.





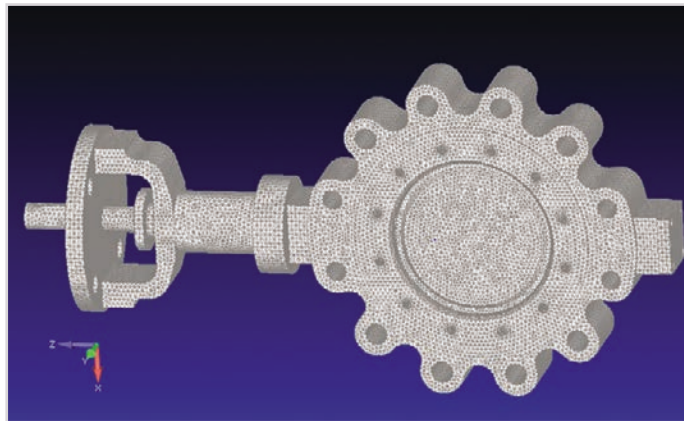
### ANALYSIS(CRYOGENIC/ HIGH TEMP) FEMAP WITH NX NASTRAN (TMG)

The destruction and leakages caused by heat distortion could be shut off by analytical researches of heat distribution and distortion, which is accompanied by various simulations resembled real situation.



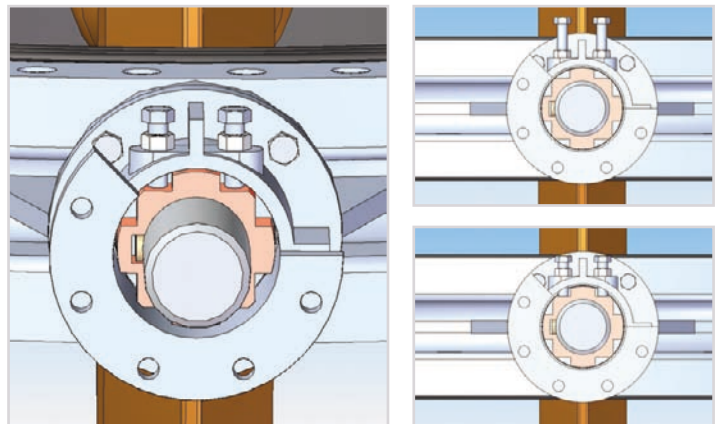
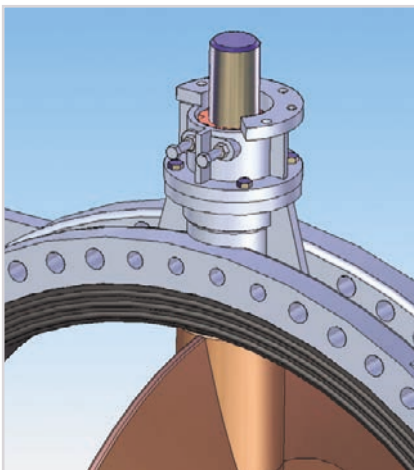
### DESIGN FEATURE

CRYOGENIC/HIGH TEMP VALVES are designed to satisfy customers needs for valve of EXTREME WORKING CONDITION by our experienced engineers



### CAVITATION FREE

It is needed to stop fluid flows when installing or separating a actuator at its open position. However, valve with CAVITATION HOLDER can remove vibrations of valve in its open position. It is possible to attach this device to almost all valves with small installation spaces.



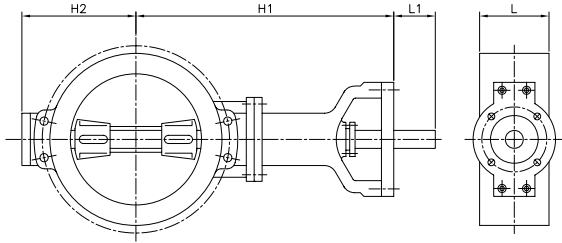
### CAVITATION HOLDER CONNECTING DIMENSION

- VALVE SIZE(1050A~4000A)
- FASTENING AREAS OF VALVE : ISO5210/5211 STANDARD
- FASTENING AREAS OF ACTUATOR : ISO5210/5211 STANDARD
- Changeable if required.

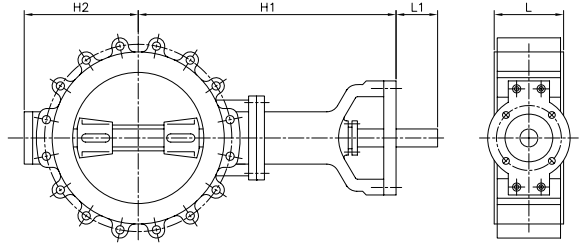
※ CONCENTRIC BUTTERFLY VALVE WITH CAVITATION HOLDER



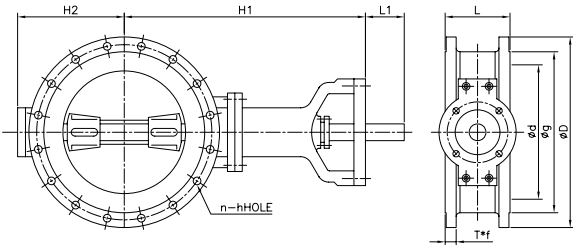
# CRYOGENIC/HIGH TEMP BUTTERFLY VALVE DIMENSION TABLE(mm)



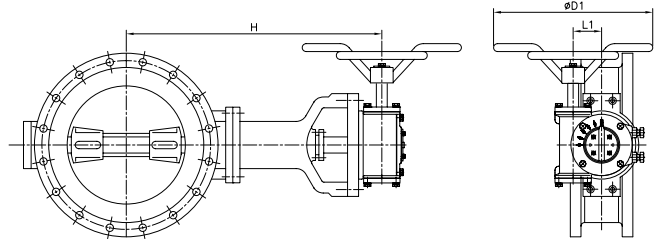
WAFER TYPE



LUG TYPE



FLANGE TYPE



FLANGE GO TYPE

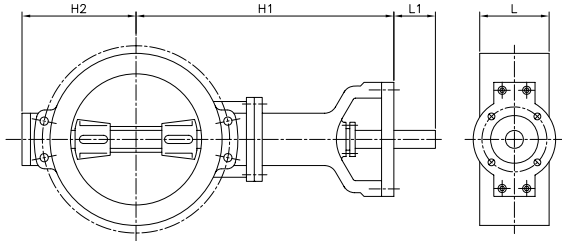
## 150LB MANUAL GEAR OPERATING TYPE

SIZE	DIAMETAL	d	FLANGE						H1	H2	H	L(FACE TO FACE)			L1	L2	D1	MINIUM BODY WALL THICKNESS
			PCDC	a	h HOLE h TAP	txf	g	D				WEFER	LUG	FLANGE				
80	3	80	152.5	4	19 5/8	22.3×1.6	127	190	315	127	370	48	48	114	35	206	300	5.6
100	4	100	190.5	8	19 5/8	22.3×1.6	157	229	350	150	405	54	54	127	35	206	300	6.4
150	6	150	241.5	8	22 3/4	23.8×1.6	216	279	395	180	450	57	57	140	35	206	300	7.1
200	8	200	298.5	8	22 3/4	27×1.6	270	343	440	195	490	64	64	152	35	206	300	7.9
250	10	250	362.0	12	25 7/8	28.6×1.6	324	406	465	225	515	71	71	165	65	206	300	8.6
300	12	300	432.0	12	25 7/8	30.2×1.6	381	483	635	265	590	81	81	178	80	230	400	9.7
350	14	350	476.5	12	29 1	33.4×1.6	413	533	565	290	620	92	92	190	80	230	400	10.7
400	16	400	539.5	16	29 1	35×1.6	470	597	635	340	700	102	102	216	80	279	450	11.4
450	18	450	578.0	16	32 1 1/8	38.1×1.6	533	635	702	360	765	114	114	220	80	279	450	12.2
500	20	500	635.0	20	32 1 1/8	41.3×1.6	584	698	750	395	825	127	127	229	80	312	560	13
600	24	600	749.5	20	35 1 1/4	46.1×1.6	692	813	820	465	885	154	154	267	110	312	560	14.7
700	28	700	863.5	28	35 1 1/4	69.8×1.6	800	927	1035	570	1125	165	165	292	130	371	630	16.3
750	30	750	914.5	28	35 1 1/4	73.1×1.6	857	984	1045	600	1135	165	165	318	130	371	630	17
800	32	800	978.0	28	41 1 1/2	79.4×1.6	914	1060	1100	630	1190	190	190	318	130	425	710	18
900	36	900	1086.0	32	41 1 1/2	88.8×1.6	1022	1168	1170	690	1260	200	200	330	160	425	710	19.6
1000	40	1000	1200.0	36	41 1 1/2	88.8×1.6	1024	1289	1335	720	1425	216	216	410	175	425	710	21.3
1050	42	1050	1257.5	36	41 1 1/2	95.2×1.6	1194	1346	1360	750	1480	251	251	410	175	513	800	22.1
1200	48	1200	1422.5	44	41 1 1/2	106.4×1.6	1359	1511	1520	845	1640	276	276	470	200	513	800	24.6
1250	50	1250	1428.8	44	48 3/4	111.3×1.6	1409.7	1568.5	1665	895	1850	350	350	470	200	513	900	25.4
1300	52	1300	1479.6	44	48 3/4	115.8×1.6	1460.5	1625.6	1695	925	1880	350	350	470	200	513	900	26.2
1350	54	1350	1549.4	44	48 3/4	120.7×1.6	1511.3	1682.8	1850	950	2035	350	350	470	200	513	900	27.2
1400	56	1400	1600.2	48	48 3/4	124×1.6	1574.8	1746.3	1875	985	2070	390	390	530	210	605	1000	28.2
1450	58	1450	1651	48	48 1 3/4	128.5×1.6	1625.6	183.4	1900	1015	2095	390	390	530	210	605	1000	29
1500	60	1500	1701.8	52	48 1 3/4	131.8×1.6	1676.4	1854.2	1930	1040	2125	390	390	530	210	605	1000	30

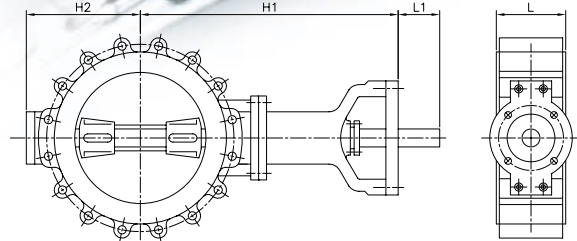
FLANGE RATING—ACCORDING TO ANSI B 16.5/ASME 16.47 SERIES "A" & "B"/DIN/BS/JIS/USER SPEC

※1 FACE TO FACE DIMENSION—ACCORDING TO MAKER STANDARD.

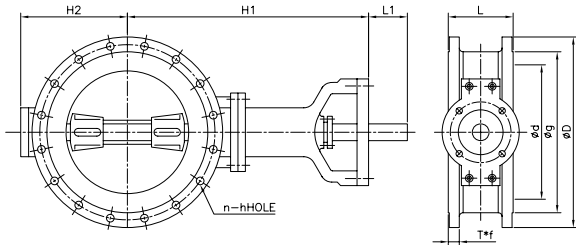
※2 EXCEPT ACTUATOR



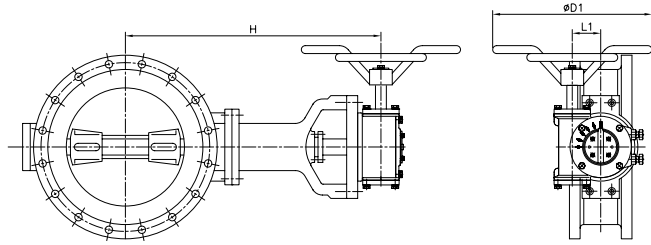
WAFER TYPE



LUG TYPE



FLANGE TYPE



FLANGE GO TYPE

### 300LB MANUAL GEAR OPERATING TYPE

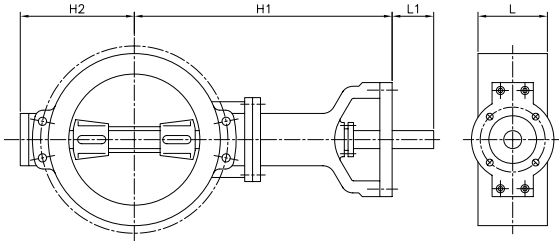
SIZE	DIAMETAL	d	FLANGE							H1	H2	H	L (FACE TO FACE)			L1	L2	D1	MINIUM BODY WALL THICKNESS
			PCD C	a	h HOLE h TAP	t×f	g	D	WEFER				LUG	FLANGE					
80	3	80	168	8	22 3/4	27×1.6	127	210	315	127	370	48	48	114	65	206	300	7.11	
100	4	100	200	8	22 3/4	30.2×1.6	157	254	350	151	405	54	54	127	65	206	300	7.9	
150	6	150	270	12	22 3/4	35×1.6	216	318	430	199	430	59	59	140	65	206	300	9.7	
200	8	200	350	12	25 7/8	39.7×1.6	270	381	475	218	530	73	73	152	80	230	400	11.2	
250	10	250	387	16	29	45.8×1.6	324	444	520	251	575	83	83	165	80	230	400	12.7	
300	12	300	451	16	32 1 1/8	49.2×1.6	381	521	595	296	650	92	92	178	80	230	400	14.2	
350	14	350	514.5	20	32 1 1/8	52.4×1.6	413	584	625	331	690	117	117	190	80	279	450	16.5	
400	16	400	571.5	20	35 1 1/8	55.6×1.6	470	648	680	377	745	133	133	216	110	279	450	18	
450	18	450	628.5	24	32 1 1/4	58.8×1.6	533	711	790	410	855	149	149	222	110	312	560	19.8	
500	20	500	686	24	32 1 1/4	61.9×1.6	584	775	830	440	895	159	159	229	130	312	560	21.3	
600	24	600	813	24	41 1 1/4	68.3×1.6	692	914	900	513	990	181	181	267	130	371	630	24.6	
700	28	700	940	28	44.5 1 5/8	84.3×1.6	800	1035	1170	640	1260	229	229	292	200	371	630	28	
750	30	750	997	28	48 1 3/4	90.3×1.6	857	1092	1200	690	1290	241	241	318	200	425	710	29.7	
800	32	800	1054	28	51 1 7/8	96.9×1.6	914	1149	1230	720	1320	241	241	318	200	425	710	31.2	
900	36	900	1188.5	32	54 2	103×1.6	1022	1270	1310	780	1400	260	260	330	200	425	710	34.8	
1000	40	1000	1156	32	44.5 1 5/8	112.7×1.6	1086	1238	1490	800	1610	300	300	410	200	513	800	38.1	
1050	42	1050	1206.5	32	44.5 1 5/8	117.5×1.6	1136	1289	1550	840	1660	300	300	410	200	513	800	39.6	
1200	48	1200	1327	32	51 1 7/8	131.7×1.6	1301	1467	1650	950	1770	320	320	470	250	536	900	44.7	
1250	50	1250	1428.8	32	54 2	139.7×1.6	1358.9	1530.4	1665	895	1860	350	350	470	210	625	1000	46.5	
1300	52	1300	1479.6	32	54 2	144.5×1.6	1409.7	1581.2	1695	925	1890	350	350	470	210	625	1000	48.3	
1350	54	1350	1549.4	28	60.5 2 1/4	152.4×1.6	1466.9	1657.4	1850	950	2045	350	350	470	210	625	1000	50.0	
1400	56	1400	1600.2	28	60.5 2 1/4	154×1.6	1517.7	1708.2	1875	985	2080	390	390	530	220	718	1000	51.8	
1450	58	1450	1651	32	60.5 2 1/4	158.8×1.6	1574.8	1759	1900	1015	2105	390	390	530	220	718	1000	53.6	
1500	60	1500	1701.8	32	60.5 2 1/4	163.6×1.6	1625.6	1809.8	1930	1040	2135	390	390	530	220	718	1000	55.4	

FLANGE RATING-ACCORDING TO ANSI B 16.5 / ASME 16.47 SERIES "A" & "B" / DIN / BS / JIS / USER SPEC

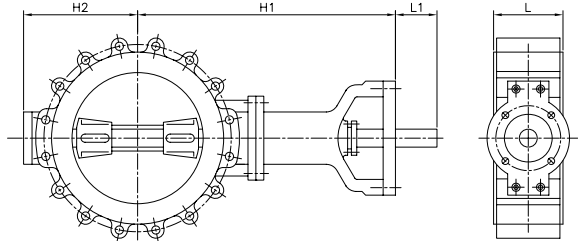
\*1 FACE TO FACE DIMENSION-ACCORDING TO MAKER STANDARD.

\*2 EXCEPT ACTUATOR

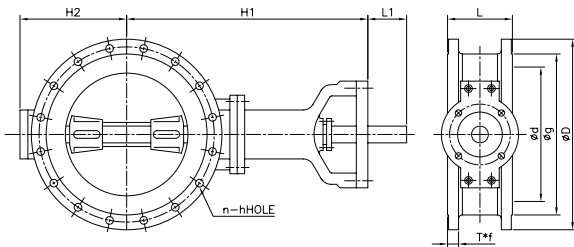
# CRYOGENIC/HIGH TEMP BUTTERFLY VALVE DIMENSION TABLE(mm)



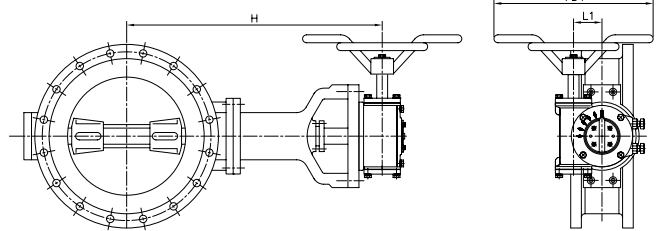
WAFER TYPE



LUG TYPE



FLANGE TYPE



FLANGE GO TYPE

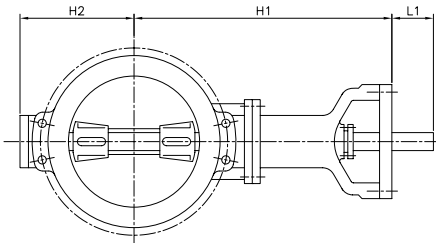
## 600LB MANUAL GEAR OPERATING TYPE

SIZE	DIAMETAL	d	FLANGE						H1	H2	H	L(FACE TO FACE)			L1	L2	D1	MINIUM BODY WALL THICKNESS
			PCDC	a	h HOLE h TAP	txf	g	D				WAFER	LUG	FLANGE				
80	3	80	168	8	34 3/4	31.7×4	127	210	360	154	415	54	54	180	80	230	400	7.9
100	4	100	200	8	35 7/8	38.1×4	157	273	365	166	420	64	64	190	80	230	400	9.7
150	6	150	292	12	28.5 1	47.8×4	216	356	460	238	515	78	78	210	80	230	400	12.7
200	8	200	349.5	12	32 1 1/8	55.6×4	270	419	505	248	560	102	102	230	80	230	400	16
250	10	250	432	16	35 1 1/4	63.5×4	324	508	580	316	645	117	117	250	80	279	450	19.6
300	12	300	489	20	35 1 1/4	66.5×4	381	559	655	349	720	140	140	270	110	312	560	23.4
350	14	350	527	20	38 1 3/8	69.8×4	413	603	670	374	735	155	155	290	110	312	560	26.2
400	16	400	603	20	41 1 1/2	76.2×4	470	686	785	474	875	178	178	310	130	371	630	30
450	18	450	654	20	44.5 1 5/8	82.6×4	533	743	875	476	965	200	200	330	130	371	630	33.3
500	20	500	724	24	44.5 1 5/8	88.9×4	584	813	920	504	1010	216	216	350	130	425	710	37
600	24	600	838.5	24	51 1 7/8	101.6×4	692	940	1000	550	1090	232	232	390	180	425	710	43.7

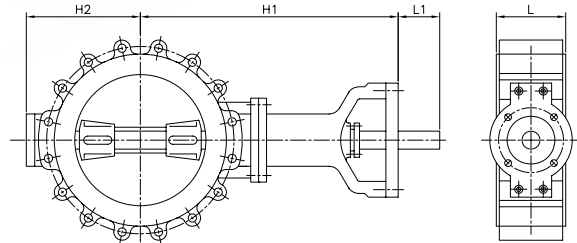
FLANGE RATING-ACCORDING TO ANSI B 16.5 / ASME 16.47 SERIES "A" & "B" / DIN/BS/ JIS / USER SPEC

※1 FACE TO FACE DIMENSION-ACCORDING TO MAKER STANDARD.

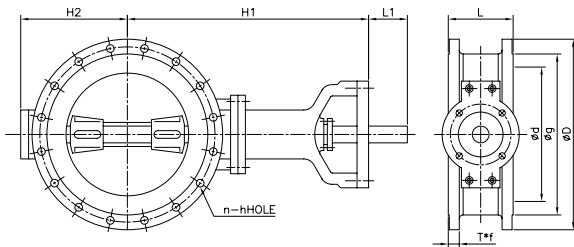
※2 EXCEPT ACTUATOR



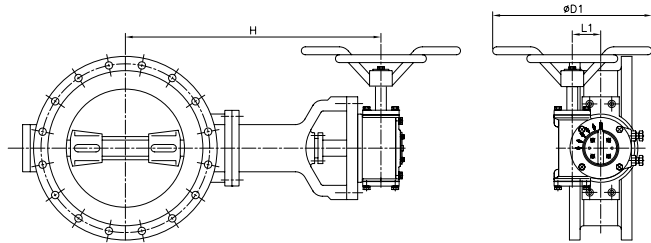
WAFER TYPE



LUG TYPE



FLANGE TYPE



FLANGE GO TYPE

### 900LB MANUAL GEAR OPERATING TYPE

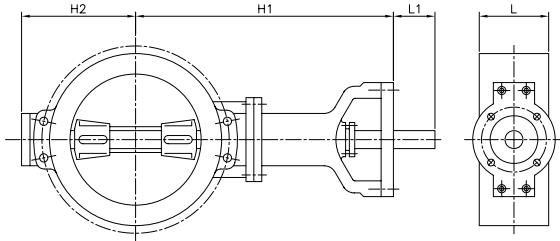
SIZE DIAMETAL	d	FLANGE							H1	H2	H	L(FACE TO FACE)			L1	L2	D1	MINIUM BODY WALL THICKNESS
		PCDC	a	h HOLE h TAP	t×f	g	D	WAFER				LUG	FLANGE					
150	6	150	317.5	12	32 1 1/8	55.6×4	216	381	485	238	550	104	104	250	80	279	450	18.8
200	8	200	393.7	12	38 1 3/8	63.5×4	270	469.9	560	281	625	112	112	310	80	312	560	23.6
250	10	250	469.9	16	38 1 3/8	69.9×4	324	546.1	615	358	680	135	135	350	110	312	560	28.7
300	12	300	533.4	20	38 1 3/8	79.3×4	381	609.6	700	383	790	170	170	380	110	371	630	34.3
350	14	350	558.8	20	41 1 1/2	85.9×4	413	641.4	745	419	835	173	173	400	130	371	630	39.6
400	16	400	616	20	44.5 1 5/8	88.9×4	470	704.9	840	455	930	210	210	430	130	425	710	45
450	18	450	685.8	20	51 1 7/8	101.6×4	533	787.4	940	503	1030	228	228	460	180	425	710	49.8
500	20	500	749.3	20	54 2	108×4	584	857.3	960	550	1080	250	250	490	180	513	800	55.1
600	24	600	901.7	20	66.5 2 1/2	139.7×4	692	1041.4	1070	656	1200	275	275	530	200	513	800	66.3

FLANGE RATING-ACCORDING TO ANSI B 16.5 / ASME 16.47 SERIES "A" & "B" / DIN / BS / JIS / USER SPEC

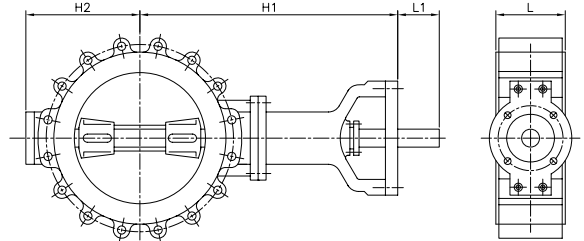
\*1 FACE TO FACE DIMENSION-ACCORDING TO MAKER STANDARD.

\*2 EXCEPT ACTUATOR

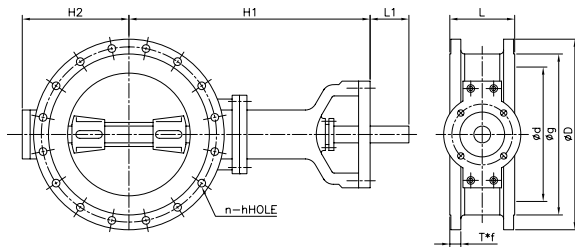
# CRYOGENIC/HIGH TEMP BUTTERFLY VALVE DIMENSION TABLE (mm)



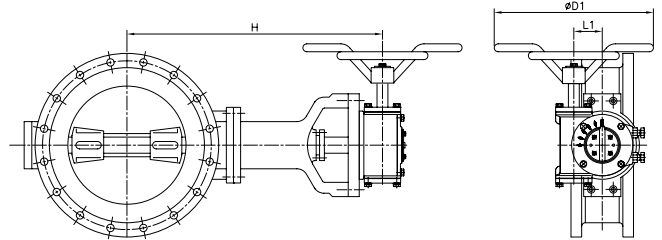
WAFER TYPE



LUG TYPE



FLANGE TYPE



FLANGE GO TYPE

## 1500LB MANUAL GEAR OPERATING TYPE

SIZE	DIAMETAL	d	FLANGE						H1	H2	H	L(FACE TO FACE)			L1	L2	D1	MINIUM BODY WALL THICKNESS
			PCDC	a	h HOLE h TAP	txf	g	D				WEFER	LUG	FLANGE				
150	6	150	317.5	12	38.1 1 3/8	82.6×4	216	393.7	370	257	435	160	160	290	110	312	560	30.8
200	8	200	393.7	12	44.5 1 5/8	91.9×4	270	482.6	430	307	520	180	180	330	110	371	630	40.4
250	10	250	482.6	12	51 1 7/8	108×4	324	584.2	540	371	630	200	200	390	130	371	630	49.3
300	12	300	571.5	16	54 2	124×4	381	673.1	575	414	665	230	230	430	130	425	710	58.7
350	14	350	635	16	60.5 2 1/4	133.4×4	413	749.3	650	493	740	250	250	470	180	425	710	68.3
400	16	400	704.9	16	66.5 2 1/2	146.1×4	470	825.5	700	530	820	265	265	510	200	513	800	77.7
450	18	450	774.7	16	73 2 3/4	162.1×4	533	914.4	800	591	920	300	300	550	200	513	800	86.9
500	20	500	831.9	16	79 3	177.8×4	584	984.3	850	664	975	340	340	630	200	536	900	96.3
600	24	600	990.6	16	92 3 1/2	203.2×4	692	1168.4	1000	780	1125	400	400	710	250	536	900	115

FLANGE RATING-ACCORDING TO ANSI B 16.5/ASME 16.47 SERIES "A" & "B"/DIN/BS/JIS/USER SPEC

※1 FACE T O FACE DIMENSION-ACCORDING TO MAKER STANDARD.

※2 EXCEPT ACTUATOR

# D.H.C FIGURE NUMBER CODING CHART

FIGURE NUMBER CODING CHART											
VALVES		CLASS RATING		SEAT TYPE		SEAT MATERIAL		CONNECTION TYPE		OPERATOR	
					BODY						
BT	BUTTERFLY TRIPLE										
BD	BUTTERFLY DOUBLE						S: STAINLESS			L:	LEVER TYPE
BC	BUTTERFLY CONCENTRIC						ST: STELLITE				
BH	BUTTERFLY HIGH/LOW TEMP	1:	150LB				TI: TITANIUM			G:	GEAR BOX
SC3	SWING CHECK-SLOW SHUT	2:	300LB								
SCF	SWING CHECK-FAST SHUT	3:	600LB								
BCC	BUTTERFLY CHECK COMBINED	4:	900LB				INC: INCONEL	F: FLANGE		ACL:	AIR CYLINDER LINEAR TYPE
BCN	BUTTERFLY CHECK NONRETURN	5:	1500LB				MO: MONEL				
DC	DUAL PLATED CHECK	6:	2500LB	M:	METAL	METAL		L: LUGGED			
TO	TILTING DISC CHECK-ONE BODY	1J:	5K							ACR:	AIR CYLINDER ROTARY TYPE
TT	TILTING DISC CHECK-TWO BODY	2J:	10K	R:	RESILIENT	RESILIENT	NB: NBR	W: WAFER			
DN	DAMPER NORMAL	3J:	16K								
DS1	DAMPER SPECIAL TYPE 1	4J:	20K	MR:	METAL	RESILIENT	EP: EPDM	WE: WELDING		HYCL:	HY'D CYLINDER LINEAR TYPE
DS2	DAMPER SPECIAL TYPE 2	5J:	30K								
BaT	BALL VALVE TRUNION	6J:	40K	RM:	RESILIENT	METAL	PT: PTFE				
BaF	BALL VALVE FLOATING	1B:	6BAR					R: RING JOINT		HYCR:	HY'D CYLINDER ROTARY TYPE
AP	AQUA PLUG(GAS SHUT OFF)	2B:	10BAR	FS:	FIRE	SAFETY	RT: R-PTFE				
AS	AQUA SEAL(GAS SHUT OFF)	3B:	16BAR								
K	KNIFE GATE	4B:	25BAR	N:	NONE	NONE	PC: PCTFE	L: LARGE FEMALE		B:	BARE TYPE
L	GATE VALVE(PARREL/WEDGE)	5B:	40BAR								
LG	LOW TORQUE GATE	B:	CL.B				NY: NYLON	S: SPECIAL			
		D:	CL.D							DP:	DASH POT
		E:	CL.E				AL: AL-BRONZ				
		F:	CL.F								
							BZ: BRONZ			HPU:	HY'D POWER UNIT
							S: SPECIAL				

EX) BUTTERFLY VALVES TRIPLE OFFSET ANSI 150LB METAL TO METAL STAINLESS SEAT FLANGETYPE GEAR OPERATED 150A OPERATING TEMP 300 DEG.C

-DHC-BT 1 M-ST-F-G -(SIZE)150-(NOTE)OPERATING TEMP 300 DEG.C



### AQUA PLUG VALVE (GAS CUT-OFF)

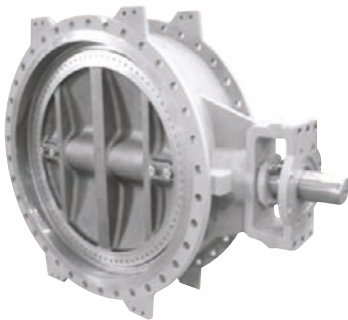
Horizontal

Vertical

Size : 8"~100"

Temp : -10~80°C

Media: COG, LDG, BFG, etc.

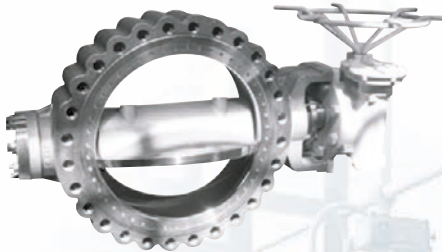


### TRIPLE OFFSET BUTTERFLY VALVE

Size : 3"~120"

Temp : -100~800°C

Media: SEA WATER, DUST, OIL, GAS,  
CORROSIVE MEDIA



### HIGH PRESSURE BUTTERFLY VALVE

Size : 3"~100"

Temp : -100~800°C

Media: SEA WATER, DUST, OIL, GAS,  
CORROSIVE MEDIA



### LARGE SIZE BUTTERFLY VALVE

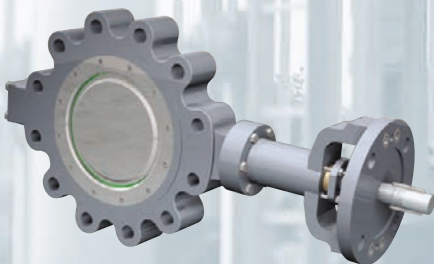
Metal Seat

Rubber Seat

Size : 2"~160"

Temp : -100~800°C

Media: SEA WATER, DUST, OIL, GAS,  
CORROSIVE MEDIA



### CRYOGENIC / HIGH TEMP BUTTERFLY VALVE

Metal Seat

PCTFE Seat

Size : 3"~48"

Temp : -196~800°C

Media: N2 GAS, LNG, LPG, etc

## ORGANIZATION CHART



Innovative Company with Advanced Technology

# D.H.C

 CONTROL CO., LTD