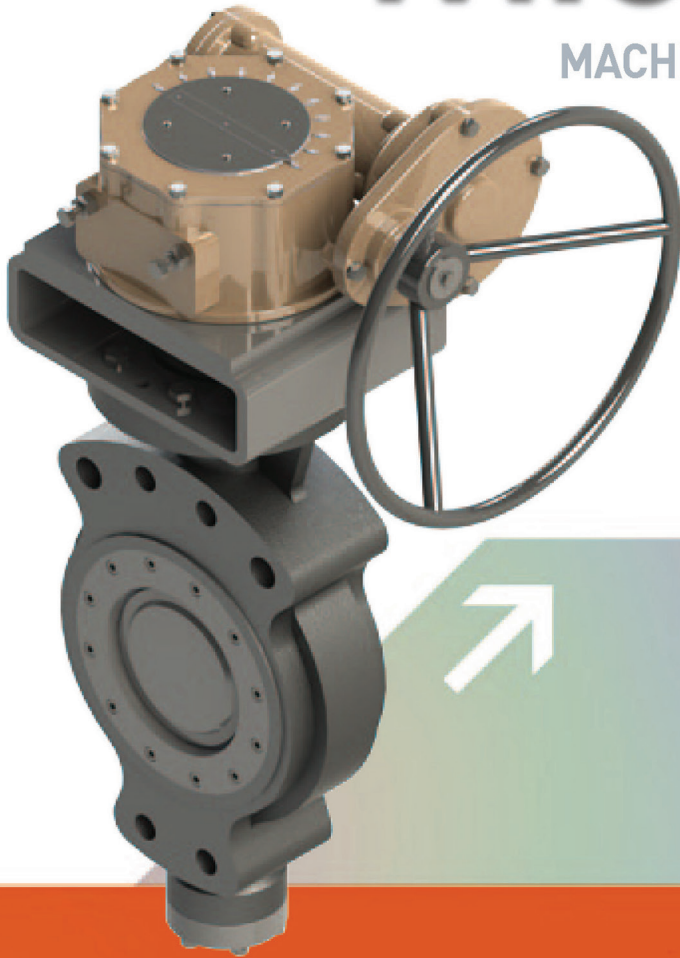


MTS VALVES

MACHINERY TECHNOLOGY SOLUTIONS
SPECIAL BUTTERFLY VALVES



TRIPLE
OFFSET
BUTTERFLY
VALVE



ISO 9001:2008



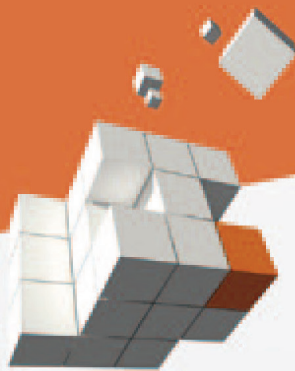
ISO 14001:2004

MTS MTS CO., LTD

SINCE 1997 MACHINERY TECHNOLOGY SOLUTIONS CO., LTD
E-MAIL : mts@mts98.co.kr <http://www.mts98.co.kr>
CONTROL VALVE, MANUAL VALVE, DAMPER, SPECIAL VALVE

CEO GREETINGS

TRIPLE OFFSET BUTTERFLY VALVE



**DO ONE'S BEST
TOP QUALITY
CUSTOMER
SATISFACTION**

**MACHINERY TECHNOLOGY SOLUTIONS CO., LTD
PRESIDENT M.G.AN**



MTS Co., Ltd.[Machinery Technology Solutions] was established in 1997 and have grown up as one of the leading manufacturers for valve products include gate valve, globe valve, check valve, ball valve, butterfly valve, plug valve, pneumatic actuator & electric actuators etc.. in Korea through new ideas and accumulated know-how in the field of valve products.

In the year 2004, our company passed the ISO9001:2000 quality assurance system and appraised as "Management Renovation Company" by Small and Medium Business Administration of government. The company now functions developing, producing, assembling, sale and after-service as one concerned mechanism and is specialized in manufacturing valves.

Our all employees of our company have new resolution and will dedicate themselves to supply best quality products as prompt delivery.

The technical staff of MTS makes qualified products capable of a great flexibility and permits to satisfy special kinds of requires.

Competence, Availability and Kindness are some of the most important qualities that characterise the relationship with customers.

CONTENTS

FEATURE	04
EXPLODED VIEW	06
SPECIFICATION	07
VALVE DIMENTIONS	08
CV/KV VALUE	40
TORQUE TABLES	44
CONNECTION BOLT TABLES	48
ISO5211	52
ORDERING CHART	53

TRIPLE OFFSET BUTTERFLY VALVE

BODY

The valve body shall be one piece cast or fabrication. The body can be supplied with different types of materials in wafer, lug, of flanged and butt welding end connections to satisfy all installation requirements.

BODY SEAT

The valve seat shall be integrated with the body. Stellite or stainless steel shall be applied on the seating surface of valve body. The valve seat is designed for inclined cone to ensure non-rubbing, non-jamming, bi-directional shut-off, and zero leakage.

DISC

The valve disc shall be the same material as the valve body. It is supported by laminated seal ring, which is kept in place by seat retainer ring bolted to the disc and can be replaced easily. The spiral wound gasket shall be provided between laminated seal ring and disc.

SEAL RING (LAMINATED)

The seal ring shall be resilient stainless steel lamella alternated by graphite, aramid fiber & ceramic fiber layers. The surface contacting between seal ring and body seal is an inclined cone type and the inclined angle generates a slight welding effect. With a seat retainer ring bolted to the disc, the seal ring is fixed to disc not too tightly to be replaced easily.

STEM

The stem shall be stainless steel and one piece & two piece construction. The stem shall be fixed to the disc by pin or in combination of pin and key. It can be protected by internal thrust bush and bush bearing. The thrust bush and bush bearing shall be provided to locate the valve disc in a proper position. The retainer ring shall be installed to avoid blowing out the stem.

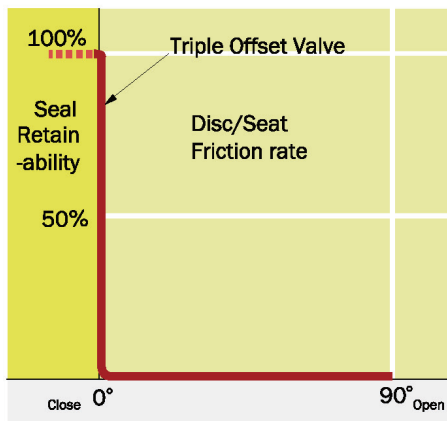
PACKING

The packing shall consist of two braided rings in the top and bottom of valve and three die formed graphite rings in the middle. The lantern ring may be provided as required by customer.

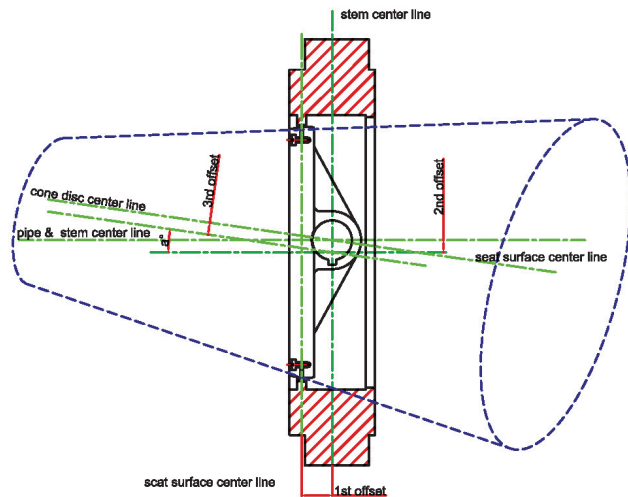
ACTUATORS

All valves shall be self-locking manual gear operation type which is served as standard. Electric, pneumatic or hydraulic actuator may be provided as required by customer.

TRIPLE OFFSET BUTTERFLY VALVE



OFFSET VALVE DISC/SEAT FRICTION



TRACING THE EVOLUTION OF TRIPLE OFFSET DESIGN

TRIPLE OFFSET DESIGN PRINCIPLES

Triple offset metal seat butterfly valves provide a bi-directional and bubble-tight shut-off which is attributed to the geometry of triple offset seat. The valve stem is offset by seat (1st offset) and the valve seat surface center line is offset against the center line of pipe (2nd offset) and the conical axis is offset by valve center line (3rd offset: inclined cone). The 3rd offset completely eliminates rubbing.

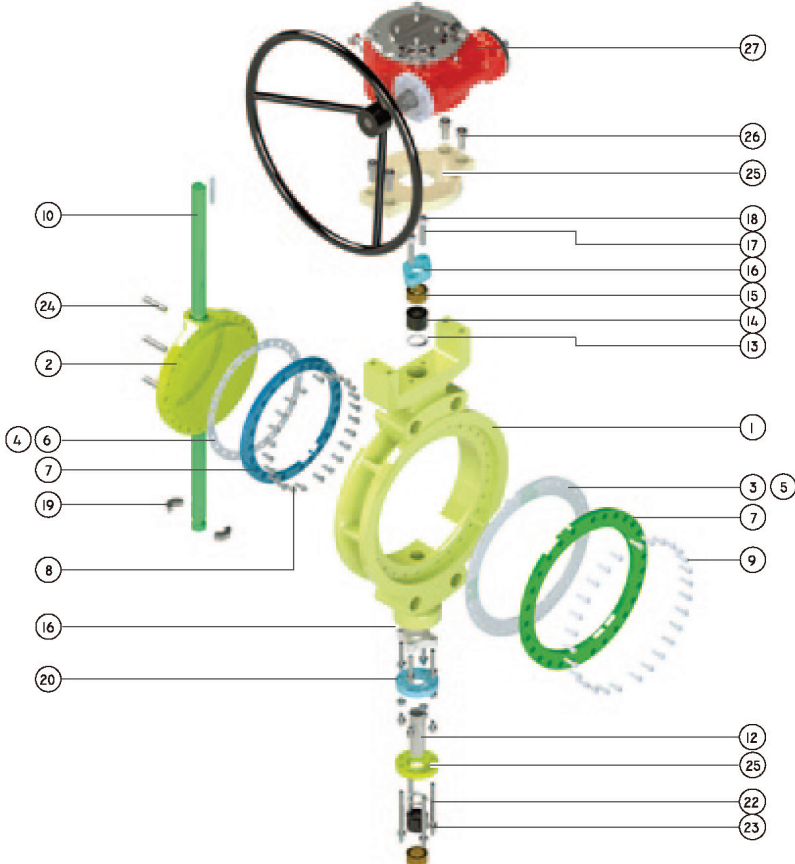
The seat surfaces of body and seal ring in triple offset valve contact with the inclined "cone-in-cone" and this design requires excellent sealing and seat part durability by slight wedging effect.

In addition, the angle of contact between body and seal ring has a good sealing performance by low torque because the angle travels the initial torque from actuator to seat parts without any loss by jamming.

The valve is characteristic of concentric, offset and double offset construction with remarkable sealing performance and seat part durability, and moreover it is hardly needed to repair.

CHARACTERISTICS AND MERITS

- Excellent durability of seat part and low operating torque by non-rubbing characteristics with triple offset construction.
- Bi-directional zero leakage service by resilient metal sealing and torque seating.
- Unrestricted selection of face to face dimensions for API, ASME(ANSI), BS, ISO, etc. and perfect interchangeability of gate, ball, plug, high performance butterfly, and other valves.
- Low emission by quarter turn construction and good performance at automation by virtue of low operating torque and low cost.



NO	PART NAME	NO	PART NAME	NO	PART NAME
1	BODY	10	SHAFT	19	SEGMENT RING
2	DISC	11	MAIN BUSH	20	RING HOLDER (TOP)
3	BODY SEAT	12	STUB BUSH	21	RING HOLDER(BOTTOM)
4	DISC SEAT	13	PACKING RING	22	ADJUSTABLE BOLT
5	BODY SEAT GASKET	14	PACKING	23	ADJUSTABLE NUT
6	DISC SEAT GASKET	15	GLAND RING	24	SHAFT PIN
7	INSERT RING	16	GLAND FLANGE	25	TOP FLANGE
8	DISC INSERT RING BOLT	17	GLAND BOLT	26	TOP FLANGE BOLT
9	BODY INSERT RING BOLT	18	HEX, NUT	27	GEAR BOX

TRIPLE OFFSET BUTTERFLY VALVE SPECIFICATION



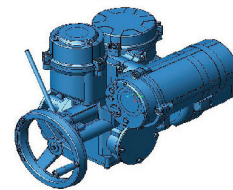
OPERATING METHOD



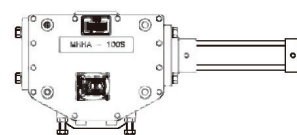
MANUAL



PNEUMATIC



ELECTRIC



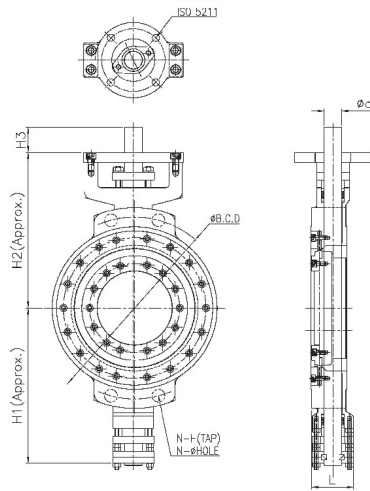
HYDRAULIC

DESCRIPTION

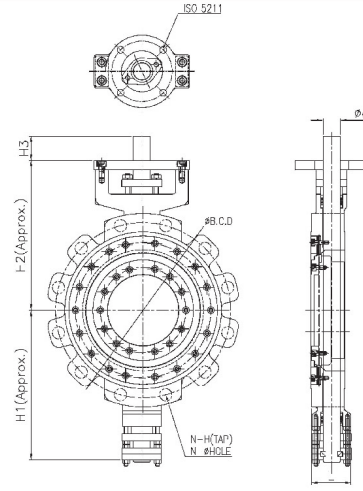
SIZE RANGE:	2"~120"
TEMP. RANGE:	-50 ~ 650℃
DESIGN:	API 609 / BS 5155 / ANSI B 16.34
TEST INSPECTION:	API 598 / ISO 5208
PRESSURE TEMP' RATINGS:	ASME / ANSI B 16.34 ,16.24
LEAKAGE:	ZERO LEAKAGE
FLUID:	WATER/SEA WATER/O2/CO2/H2/ COG/LDG/BFG/FOG/MIXED GAS/ DUST/STEAM/AIR/ HYDROCHLORIC ACID/SULFURIC ACID NITRIC ACID
FLANGE RATING:	ASME B 16.5/16.47 CLASS 150LB, 300LB, 600LB, 900LB, 1500LB KS(JIS) 10K, 16K, 20K, 30K, 40K BS 4504 DIN PN 10,PN 16,PN 25,PN 40, PN 63, PN 100 AWWA C207 CLASS B & D, E, F

VALVE DIMENSION

ASME CLASS 150LB



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	HOLE	ΦB, C, D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG								APPROX.	APPROX.	APPROX.	WAFER	LUG
50A	2"	43	43	4	5/8"x11unc	19	120,7	19,5	15	F07	90	120	35	4	4
65A	2 1/2"	46	46	4	5/8"x11unc	19	139,7	22,7	15	F07	110	140	35	6	7
80A	3"	48	48	4	5/8"x11unc	19	152,4	24,3	15	F07	125	161	35	7	8
100A	4"	54	54	8	5/8"x11unc	19	190,5	24,3	20	F07	147	158	40	13	14
125A	5"	57	57	8	3/4"x10unc	22,5	215,9	24,3	20	F10	165	177	40	16	18
150A	6"	57	57	8	3/4"x10unc	22,5	241,3	25,9	20	F10	230	200	40	19	21
200A	8"	64	64	8	3/4"x10unc	22,5	298,5	29	30	F10	300	285	40	31	34
250A	10"	71	71	12	7/8"x9unc	25,5	362	30,6	30	F12	322	310	45	44	48
300A	12"	81	81	12	7/8"x9unc	25,5	431,8	32,2	30	F12	375	360	50	69	76
350A	14"	92	92	12	1"x8un	28,5	476,3	35,4	30	F16	415	390	55	92	101
400A	16"	102	102	16	1"x8un	-	539,8	37	50	F16	455	430	80	141	155
450A	18"	114	114	16	1 1/8"x8un	-	577,9	40,1	60	F16	495	470	80	180	198
500A	20"	127	127	20	1 1/8"x8un	-	635	43,3	65	F20	535	510	80	227	250
550A	22"	154	154	20	1 1/4"x8un	-	692,2	46	70	F20	575	550	110	307	338
600A	24"	154	154	20	1 1/4"x8un	-	749,3	48,1	75	F25	615	590	110	360	396
650A	26"	165	165	28	1 1/4"x8un	-	806,5	68,7	75	F25	655	630	110	484	532
700A	28"	165	165	28	1 1/4"x8un	-	863,6	71,9	80	F25	695	670	140	500	550
750A	30"	190	190	28	1 1/4"x8un	-	914,4	75,1	85	F25	735	710	140	639	703
800A	32"	190	190	28	1 1/2"x8un	-	977,9	81,4	90	F25	775	750	140	689	758
850A	34"	203	203	32	1 1/2"x8un	-	1028,7	83	95	F25	815	790	140	780	858
900A	36"	203	203	32	1 1/2"x8un	-	1085,9	90,9	100	F30	855	830	140	925	1018
950A	38"	203	203	32	1 1/2"x8un	-	1149,4	87,8	100	F30	895	870	140	1008	1109
1000A	40"	216	216	36	1 1/2"x8un	-	1220,2	90,9	105	F35	935	910	140	1176	1294
1050A	42"	216	216	36	1 1/2"x8un	-	1257,3	97,3	110	F35	975	950	140	1212	1333
1100A	44"	240	240	40	1 1/2"x8un	-	1314,5	102,1	120	F35	1015	990	140	1488	1637
1150A	46"	254	254	40	1 1/2"x8un	-	1365,3	103,6	130	F35	1055	1030	140	1656	1822
1200A	48"	254	254	44	1 1/2"x8un	-	1422,4	108,4	140	F35	1095	1070	140	1728	1901
1250A	50"	274	274	44	1 3/4"x8un	-	1479,6	111,6	150	F35	1135	1110	160	1800	1980
1300A	52"	274	274	44	1 3/4"x8un	-	1536,7	116,3	160	F48	1175	1150	160	2028	2231
1350A	54"	280	280	44	1 3/4"x8un	-	1593,9	121,1	170	F48	1215	1190	160	2172	2389
1400A	56"	290	290	48	1 3/4"x8un	-	1651	124,3	180	F48	1255	1230	160	2520	2772
1450A	58"	300	300	48	1 3/4"x8un	-	1708,2	129	190	F48	1295	1270	190	3254	3580
1500A	60"	300	300	52	1 3/4"x8un	-	1759	132,2	200	F48	1335	1310	190	3600	3960

FLANGE RATING

50A(2")~600A(24") : ANSI B 16.5 CLASS 150

650A(26")~1500A(60") : ANSI B 16.47 SERIES A CLASS 150

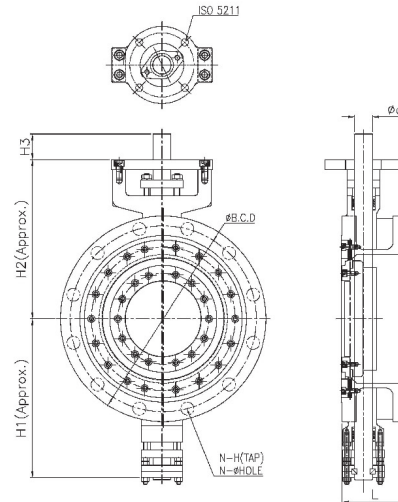
L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.

(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

ASME CLASS 150LB

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	HOLE	ΦB,C,D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch									APPROX.	APPROX.	APPROX.	APPROX.
50A	2"	108	4	5/8"x11unc	19	120,7	19,5	15	F07	90	120	35	14
65A	2 1/2"	112	4	5/8"x11unc	19	139,7	22,7	15	F07	110	140	35	19
80A	3"	114	4	5/8"x11unc	19	152,4	24,3	15	F07	125	161	35	21
100A	4"	127	8	5/8"x11unc	19	190,5	24,3	20	F07	147	158	40	29
125A	5"	140	8	3/4"x10unc	22,5	215,9	24,3	20	F10	165	177	40	37
150A	6"	140	8	3/4"x10unc	22,5	241,3	25,9	20	F10	230	200	40	44
200A	8"	152	8	3/4"x10unc	22,5	298,5	29	30	F10	300	285	40	80
250A	10"	165	12	7/8"x9unc	25,5	362	30,6	30	F12	322	310	45	102
300A	12"	178	12	7/8"x9unc	25,5	431,8	32,2	30	F12	375	360	50	128
350A	14"	190	12	1"x8un	28,5	476,3	35,4	30	F16	415	390	55	196
400A	16"	216	16	1"x8un	-	539,8	37	50	F16	455	430	80	253
450A	18"	222	16	1 1/8"x8un	-	577,9	40,1	60	F16	495	470	80	282
500A	20"	229	20	1 1/8"x8un	-	635	43,3	65	F20	535	510	80	328
550A	22"	267	20	1 1/4"x8un	-	692,2	46	70	F20	575	550	110	435
600A	24"	267	20	1 1/4"x8un	-	749,3	48,1	75	F25	615	590	110	520
650A	26"	292	28	1 1/4"x8un	-	806,5	68,7	75	F25	655	630	110	605
700A	28"	292	28	1 1/4"x8un	-	863,6	71,9	80	F25	695	670	140	682
750A	30"	292	28	1 1/4"x8un	-	914,4	75,1	85	F25	735	710	140	765
800A	32"	318	28	1 1/2"x8un	-	977,9	81,4	90	F25	775	750	140	825
850A	34"	318	32	1 1/2"x8un	-	1028,7	83	95	F25	815	790	140	880
900A	36"	330	32	1 1/2"x8un	-	1085,9	90,9	100	F30	855	830	140	932
950A	38"	330	32	1 1/2"x8un	-	1149,4	87,8	100	F30	895	870	140	1117
1000A	40"	410	36	1 1/2"x8un	-	1220,2	90,9	105	F35	935	910	140	1525
1050A	42"	430	36	1 1/2"x8un	-	1257,3	97,3	110	F35	975	950	140	1662
1100A	44"	450	40	1 1/2"x8un	-	1314,5	102,1	120	F35	1015	990	140	1811
1150A	46"	470	40	1 1/2"x8un	-	1365,3	103,6	130	F35	1055	1030	140	1974
1200A	48"	470	44	1 1/2"x8un	-	1422,4	108,4	140	F35	1095	1070	140	2152
1250A	50"	490	44	1 3/4"x8un	-	1479,6	111,6	150	F35	1135	1110	160	2346
1300A	52"	490	44	1 3/4"x8un	-	1536,7	116,3	160	F48	1175	1150	160	2557
1350A	54"	530	44	1 3/4"x8un	-	1593,9	121,1	170	F48	1215	1190	160	2787
1400A	56"	530	48	1 3/4"x8un	-	1651	124,3	180	F48	1255	1230	160	3038
1450A	58"	550	48	1 3/4"x8un	-	1708,2	129	190	F48	1295	1270	190	3311
1500A	60"	550	52	1 3/4"x8un	-	1759	132,2	200	F48	1335	1310	190	4011

FLANGE RATING

50A(2")~600A(24") : ANSI B 16,5 CLASS 150

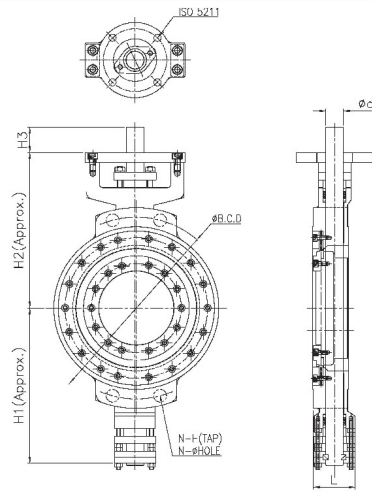
650A(26")~1500A(60") : ANSI B 16.47 SERIES A CLASS 150

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(ISO 5752 / BS 5155 ON REQUEST)

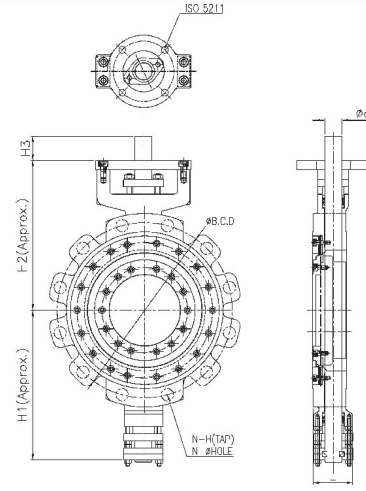
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

ASME CLASS 300LB



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	HOLE	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG								APPROX.	APPROX.	APPROX.	WAFER	LUG
50A	2"	43	43	8	5/8"x11unc	19	120,7	22,7	20	F10	100	105	25	19	21
65A	2 1/2"	46	46	8	3/4"x10unc	22,5	149,4	25,9	25	F10	103	123	25	20	22
80A	3"	48	48	8	3/4"x10unc	22,5	168,1	29	25	F10	125	161	25	22	24
100A	4"	54	54	8	3/4"x10unc	22,5	200,2	32,2	25	F10	147	183	30	23	25
125A	5"	57	57	8	3/4"x10unc	22,5	235,0	35,4	25	F10	160	200	40	26	29
150A	6"	59	59	12	3/4"x10unc	22,5	269,7	37	25	F10	192	226	45	44	49
200A	8"	73	73	12	7/8"x9unc	25,5	330,2	41,7	30	F12	236	268	55	64	70
250A	10"	83	83	16	1"x8un	-	387,4	48,1	35	F14	261	299	60	86	95
300A	12"	92	92	16	1 1/8"x8un	-	450,9	51,3	38	F14	297	332	60	109	120
350A	14"	117	117	20	1 1/8"x8un	-	514,4	54,4	40	F14	330	371	65	198	218
400A	16"	133	133	20	1 1/4"x8un	-	571,5	57,6	45	F16	361	405	80	263	289
450A	18"	149	149	24	1 1/4"x8un	-	628,7	60,8	45	F16	407	423	80	343	378
500A	20"	159	159	24	1 1/4"x8un	-	685,8	64	60	F25	441	510	80	414	455
600A	24"	181	181	24	1 1/2"x8un	-	812,8	70,3	70	F25	511	593	100	632	696
700A	28"	230	230	28	1 5/8"x8un	-	939,8	86,2	80	F25	612	696	120	885	974
750A	30"	240	240	28	1 3/4"x8un	-	997	92,5	85	F25	620	715	120	1240	1363
800A	32"	240	240	28	1 7/8"x8un	-	1054,1	98,9	90	F25	670	750	120	1643	1807
900A	36"	273	273	32	2"x8un	-	1168,2	105,2	100	F30	709	792	120	1987	2186
1000A	40"	300	300	32	1 5/8"x8un	-	1155,7	114,8	100	F30	750	870	140	2782	3060
1050A	42"	300	300	32	1 5/8"x8un	-	1206,5	119,5	120	F35	850	800	140	3895	4284
1200A	48"	350	350	32	1 7/8"x8un	-	1371,6	133,8	150	F35	930	900	140	5453	5998

FLANGE RATING

50A(2")~600A(24") : ANSI B 16.5 CLASS 300

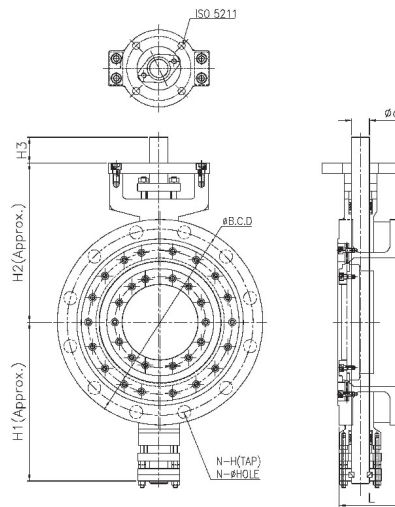
650A(26")~1200A(48") : ANSI B 16.47 SERIES A CLASS 300

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

ASME CLASS 300LB

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	HOLE	ΦB,C,D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch									APPROX.	APPROX.	APPROX.	APPROX.
100A	4"	190	8	3/4"x10unc	22,5	200,2	32,2	25	F10	147	183	30	36
125A	5"	200	8	3/4"x10unc	22,5	235,0	35,4	25	F10	160	200	40	67,2
150A	6"	210	12	3/4"x10unc	22,5	269,7	37	25	F10	192	226	45	96
200A	8"	230	12	7/8"x9unc	25,5	330,2	41,7	30	F12	236	268	55	134,4
250A	10"	250	16	1"x8un	-	387,4	48,1	35	F14	261	299	60	187,2
300A	12"	270	16	1 1/8"x8un	-	450,9	51,3	38	F14	297	332	60	235,2
350A	14"	290	20	1 1/8"x8un	-	514,4	54,4	40	F14	330	371	65	297
400A	16"	310	20	1 1/4"x8un	-	571,5	57,6	45	F16	361	405	80	394,2
450A	18"	330	24	1 1/4"x8un	-	628,7	60,8	45	F16	407	1223	80	514,8
500A	20"	350	24	1 1/4"x8un	-	685,8	64	60	F25	441	510	80	694,8
600A	24"	390	24	1 1/2"x8un	-	812,8	70,3	70	F25	511	593	100	948,6
700A	28"	430	28	1 5/8"x8un	-	939,8	86,2	80	F25	612	696	120	1328,04
750A	30"	450	28	1 3/4"x8un		997	92,5	85	F25	620	715	120	1859,256
800A	32"	470	28	1 7/8"x8un	-	1054,1	98,9	90	F25	670	750	120	2464,2
900A	36"	510	32	2"x8un	-	1168,2	105,2	100	F30	709	792	120	2980,8
1000A	40"	550	32	1 5/8"x8un	-	1155,7	114,8	100	F30	750	870	140	3875
1050A	42"	570	32	1 5/8"x8un		1206,5	119,5	120	F35	850	800	140	5038
1200A	48"	630	32	1 7/8"x8un	-	1371,6	133,8	150	F35	930	900	140	6549

FLANGE RATING

100A(4")~600A(24") : ANSI B 16.5 CLASS 300

650A(26")~1200A(48") : ANSI B 16.47 SERIES A CLASS 300

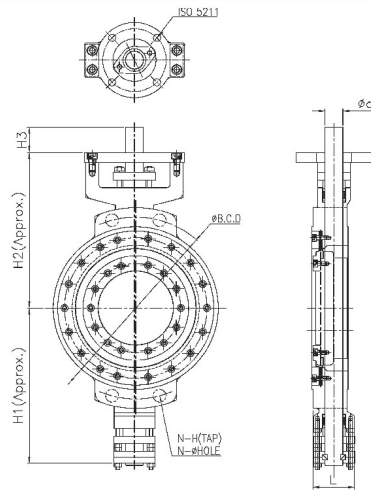
L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.

(ISO 5752 / BS 5155 ON REQUEST)

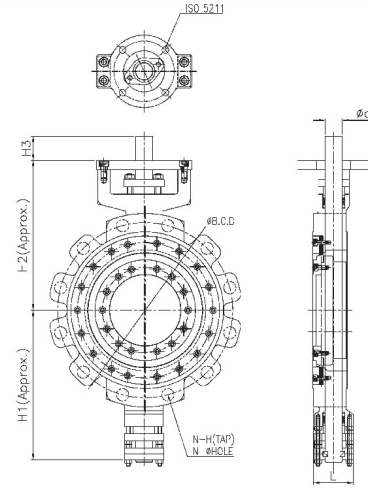
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

ASME CLASS 600LB



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG							APPROX.	APPROX.	APPROX.	WAFER	LUG
80A	3"	54	54	8	3/4"(10unc)	168,3	31,8	20	F10	150	170	25	22	26,4
100A	4"	64	64	8	7/8"(9unc)	215,9	38,1	30	F14	176	196	35	38	45,6
150A	6"	78	78	12	1"(8un)	292,1	47,7	40	F14	213	249	40	56	67,2
200A	8"	102	102	12	1 1/8"(8un)	349,2	55,6	40	F14	254	291	80	112	134,4
250A	10"	117	117	16	1 1/4"(8un)	431,8	63,5	55	F14	301	331	80	147	176,4
300A	12"	140	140	20	1 1/4"(8un)	489	66,7	65	F25	336	367	80	224	268,8
350A	14"	155	155	20	1 3/8"(8un)	527	69,9	65	F25	389	399	100	260	312
400A	16"	178	178	20	1 1/2"(8un)	603,2	76,2	65	F25	411	476	110	341	409,2
450A	18"	200	200	20	1 5/8"(8un)	654	82,6	80	F25	446	513	110	425	510
500A	20"	216	216	24	1 5/8"(8un)	723,9	88,9	80	F25	488	563	110	521	625,2
600A	24"	232	232	24	1 7/8"(8un)	838,2	101,6	100	F30	564	646	120	738	885,6

FLANGE RATING

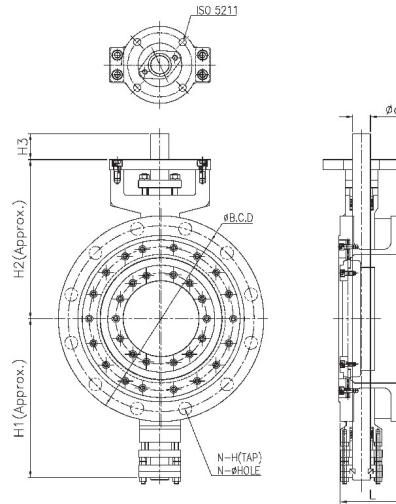
ANSI B 16.5 CLASS 600

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

ASME CLASS 600LB

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB,C,D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch								APPROX.	APPROX.	APPROX.	APPROX.
100A	4"	190	8	7/8"(9unc)	215,9	38,1	30	F14	176	196	35	61
150A	6"	210	12	1"(8un)	292,1	47,7	40	F14	213	249	40	105
200A	8"	230	12	1 1/8"(8un)	349,2	55,6	40	F14	254	291	80	176
250A	10"	250	16	1 1/4"(8un)	431,8	63,5	55	F14	301	331	80	274
300A	12"	270	20	1 1/4"(8un)	489	66,7	65	F25	336	367	80	337
350A	14"	290	20	1 3/8"(8un)	527	69,9	65	F25	389	399	100	404
400A	16"	310	20	1 1/2"(8un)	603,2	76,2	65	F25	411	476	110	613
450A	18"	330	20	1 5/8"(8un)	654	82,6	80	F25	446	513	110	749
500A	20"	350	24	1 5/8"(8un)	723,9	88,9	80	F25	488	563	110	863
600A	24"	390	24	1 7/8"(8un)	838,2	101,6	100	F30	564	646	120	1249

FLANGE RATING

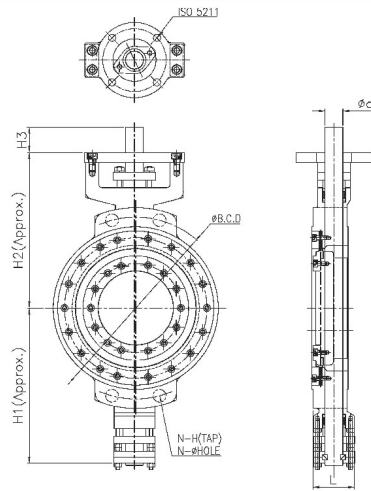
ANSI B 16.5 CLASS 600

L = FACE TO FACE DIMENSIONS ACCORDING TO ISO 5752,
(DIN 3202 / BS 5155 ON REQUEST)

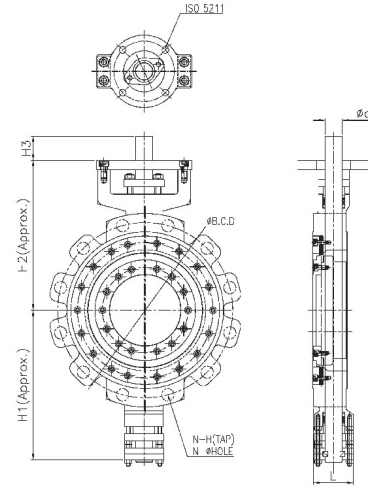
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

ASME CLASS 900LB



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	HOLE	ΦB.C.D	FLANGE THICKNESS	Φd	ISO5211	H1	H2	H3	WEIGHT	
mm	inch	WAFER	LUG								APPROX	APPROX	APPROX	WAFER	LUG
80	3	54	54	8	7/8" * 9unc	-	190.5	38.1	25	F16	190	230	70	28	33
100	4	64	64	8	1 1/8" * 8un	-	235	45	30	F16	210	250	70	48	57
150	6	78	78	12	1 1/8" * 8un	-	317.5	55.6	40	F16	250	350	70	70	84
200	8	102	102	12	1 3/8" * 8un	-	393.7	63.5	45	F25	290	390	100	140	168
250	10	117	117	16	1 3/8" * 8un	-	470	70	55	F25	370	450	100	184	221
300	12	140	140	20	1 3/8" * 8un	-	533.4	80	65	F30	400	480	110	280	336
350	14	155	155	20	1 1/8" * 8un	-	558.8	86	80	F35	430	510	150	325	390
400	16	178	178	20	1 5/8" * 8un	-	616	89	90	F40	460	600	180	426	511
450	18	200	200	20	1 7/8" * 8un	-	685.8	101.6	100	F40	550	650	180	531	638
500	20	216	216	20	2" * 8un	-	749.3	108	120	F40	550	680	180	651	781
600	24	232	232	20	2 1/2" * 8un	-	901.7	140	140	F48	660	800	220	923	1106

FLANGE RATING

ANSI B 16.5 CLASS 900

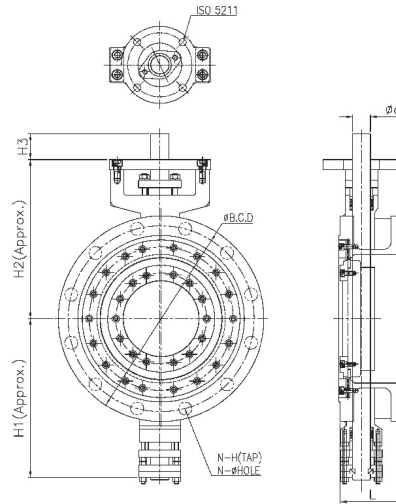
L = FACE TO FACE DIMENSIONS ACCORDING TO API 609. / MAKER STD.

(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

ASME CLASS 900LB

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	HOLE	$\Phi B.C.D$	FLANGE THICKNESS	Φd	ISO5211	H1 APPROX	H2 APPROX	H3 APPROX	WEIGHT(kg)
mm	inch	FLANGE											FLANGE
80	3	200	8	7/8" * 9unc	25.4	190.5	38.1	25	F16	190	230	70	76
100	4	200	8	1 1/8" * 8un	32	235	45	30	F16	210	250	70	92
150	6	220	12	1 1/8" * 8un	32	317.5	55.6	40	F16	250	350	70	158
200	8	240	12	1 3/8" * 8un	38	393.7	63.5	45	F25	290	390	100	264
250	10	260	16	1 3/8" * 8un	38	470	70	55	F25	370	450	100	411
300	12	280	20	1 3/8" * 8un	38	533.4	80	65	F30	400	480	110	506
350	14	300	20	1 1/8" * 8un	41	558.8	86	80	F35	430	510	150	606
400	16	320	20	1 5/8" * 8un	45	616	89	90	F40	460	600	180	920
450	18	340	20	1 7/8" * 8un	50.8	685.8	101.6	100	F40	550	650	180	1124
500	20	360	20	2" * 8un	54	749.3	108	120	F40	550	680	180	1295
600	24	400	20	2 1/2" * 8un	66.7	901.7	140	140	F48	660	800	220	1874

FLANGE RATING

ANSI B 16.5 CLASS 900

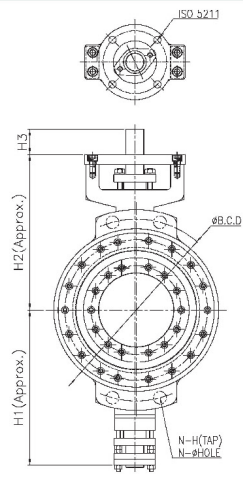
L = FACE TO FACE DIMENSIONS ACCORDING TO ISO 5752. / MAKER STD.

(DIN 3202 / BS 5155 ON REQUEST)

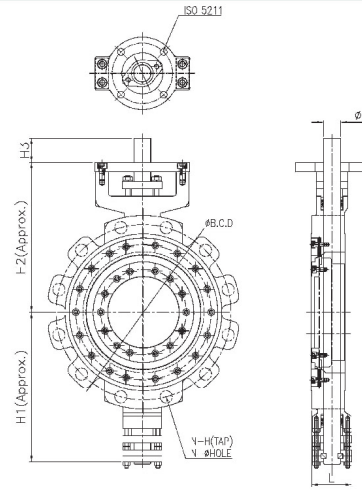
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

KS(JIS) 5K



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	ΦB,C,D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG							APPROX.	APPROX.	APPROX.	WAFER	LUG
50A	2"	43	43	4	M12	105	14	15	F07	90	120	35	4	4
65A	2 1/2"	46	46	4	M12	130	14	15	F07	110	140	35	6	7
80A	3"	48	48	4	M16	145	14	15	F07	125	161	35	7	8
100A	4"	54	54	8	M16	165	16	20	F07	147	158	40	13	14
125A	5"	57	57	8	M16	200	16	20	F10	165	177	40	16	18
150A	6"	57	57	8	M16	230	18	20	F10	230	200	40	19	21
200A	8"	64	64	8	M20	280	20	30	F10	300	285	40	31	34
250A	10"	71	71	12	M20	345	22	30	F12	322	310	45	44	48
300A	12"	81	81	12	M20	390	22	30	F12	375	360	50	69	76
350A	14"	92	92	12	M22	435	24	30	F16	415	390	55	92	101
400A	16"	102	102	16	M22	495	24	50	F16	455	430	80	141	155
450A	18"	114	114	16	M22	555	24	60	F16	495	470	80	180	198
500A	20"	127	127	20	M22	605	24	65	F20	535	510	80	227	250
550A	22"	154	154	20	M24	665	26	70	F20	575	550	110	307	338
600A	24"	154	154	20	M24	715	26	75	F25	615	590	110	360	396
650A	26"	165	165	24	M24	770	26	75	F25	655	630	110	484	532
700A	28"	165	165	24	M24	820	26	80	F25	695	670	140	500	550
750A	30"	190	190	24	M30	880	28	85	F25	735	710	140	639	703
800A	32"	190	190	24	M30	930	28	90	F25	775	750	140	689	758
850A	34"	203	203	24	M30	980	28	95	F25	815	790	140	780	858
900A	36"	203	203	24	M30	1030	30	100	F30	855	830	140	925	1018
1000A	40"	216	216	28	M30	1130	32	105	F35	895	870	140	1176	1294
1100A	44"	240	240	28	M30	1240	32	120	F35	935	910	140	1488	1637
1200A	48"	254	254	32	M30	1350	34	140	F35	975	950	140	1728	1901
1350A	54"	280	280	32	M30	1505	34	170	F48	1015	990	160	2172	2389
1500A	60"	300	300	36	M30	1660	36	200	F48	1055	1030	190	3600	3960

FLANGE RATING : KS 1506 5K (JIS B 2220 5K)

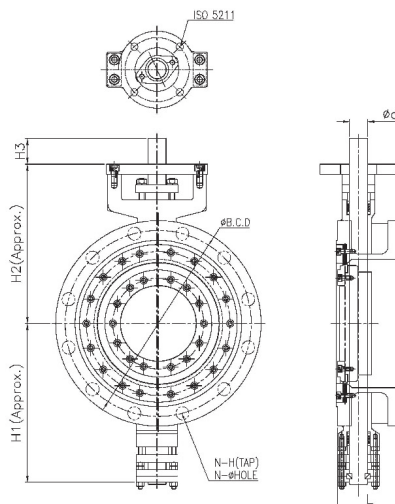
L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.

(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

KS(JIS) 5K

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch								APPROX.	APPROX.	APPROX.	APPROX.
50A	2"	108	4	M12	105	14	15	F07	90	120	35	14
65A	2 1/2"	112	4	M12	130	14	15	F07	110	140	35	19
80A	3"	114	4	M16	145	14	15	F07	125	161	35	21
100A	4"	127	8	M16	165	16	20	F07	147	158	40	29
125A	5"	140	8	M16	200	16	20	F10	165	177	40	37
150A	6"	140	8	M16	230	18	20	F10	230	200	40	44
200A	8"	152	8	M20	280	20	30	F10	300	285	40	80
250A	10"	165	12	M20	345	22	30	F12	322	310	45	102
300A	12"	178	12	M20	390	22	30	F12	375	360	50	128
350A	14"	190	12	M22	435	24	30	F16	415	390	55	196
400A	16"	216	16	M22	495	24	50	F16	455	430	80	253
450A	18"	222	16	M22	555	24	60	F16	495	470	80	282
500A	20"	229	20	M22	605	24	65	F20	535	510	80	328
550A	22"	267	20	M24	665	26	70	F20	575	550	110	435
600A	24"	267	20	M24	715	26	75	F25	615	590	110	520
650A	26"	292	24	M24	770	26	75	F25	655	630	110	605
700A	28"	292	24	M24	820	26	80	F25	695	670	140	682
750A	30"	292	24	M30	880	28	85	F25	735	710	140	765
800A	32"	318	24	M30	930	28	90	F25	775	750	140	825
850A	34"	318	24	M30	980	28	95	F25	815	790	140	880
900A	36"	330	24	M30	1030	30	100	F30	855	830	140	932
1000A	40"	410	28	M30	1130	32	105	F35	895	870	140	1525
1100A	44"	450	28	M30	1240	32	120	F35	935	910	140	1662
1200A	48"	470	32	M30	1350	34	140	F35	975	950	140	1811
1350A	54"	530	32	M30	1505	34	170	F48	1015	990	160	1974
1500A	60"	550	36	M30	1660	36	200	F48	1055	1030	190	4011

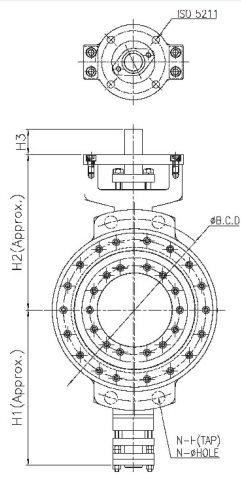
FLANGE RATING : KS 1506 5K (JIS B 2220 5K)

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

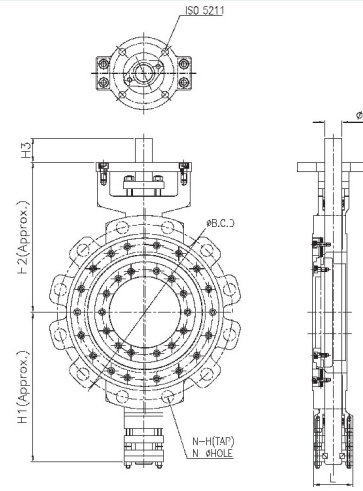
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

KS(JIS) 10K



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG							APPROX.	APPROX.	APPROX.	WAFER	LUG
50A	2"	43	43	4	M16	120	16	15	F07	90	120	35	4	4
65A	2 1/2"	46	46	4	M16	140	18	15	F07	110	140	35	6	7
80A	3"	48	48	8	M16	150	18	15	F07	125	161	35	7	8
100A	4"	54	54	8	M16	175	18	20	F07	147	158	40	13	14
125A	5"	57	57	8	M20	210	20	20	F10	165	177	40	16	18
150A	6"	57	57	8	M20	240	22	20	F10	230	200	40	19	21
200A	8"	64	64	12	M20	290	22	30	F10	300	285	40	31	34
250A	10"	71	71	12	M22	355	24	30	F12	322	310	45	44	48
300A	12"	81	81	16	M22	400	24	30	F12	375	360	50	69	76
350A	14"	92	92	16	M22	445	26	30	F16	415	390	55	92	101
400A	16"	102	102	16	M24	510	28	50	F16	455	430	80	141	155
450A	18"	114	114	20	M24	565	30	60	F16	495	470	80	180	198
500A	20"	127	127	20	M24	620	30	65	F20	535	510	80	227	250
550A	22"	154	154	20	M30	680	32	70	F20	575	550	110	307	338
600A	24"	154	154	24	M30	730	32	75	F25	615	590	110	360	396
650A	26"	165	165	24	M30	780	34	75	F25	655	630	110	484	532
700A	28"	165	165	24	M30	840	34	80	F25	695	670	140	500	550
750A	30"	190	190	24	M30	900	36	85	F25	735	710	140	639	703
800A	32"	190	190	28	M30	950	36	90	F25	775	750	140	689	758
850A	34"	203	203	28	M30	1000	36	95	F25	815	790	140	780	858
900A	36"	203	203	28	M30	1050	38	100	F30	855	830	140	925	1018
1000A	40"	216	216	28	M36	1160	40	105	F35	895	870	140	1176	1294
1100A	44"	240	240	28	M36	1270	42	120	F35	935	910	140	1488	1637
1200A	48"	254	254	32	M36	1380	44	140	F35	975	950	140	1728	1901
1350A	54"	280	280	36	M42	1540	48	170	F48	1015	990	160	2172	2389
1500A	60"	300	300	40	M42	1700	50	200	F48	1055	1030	190	3600	3960

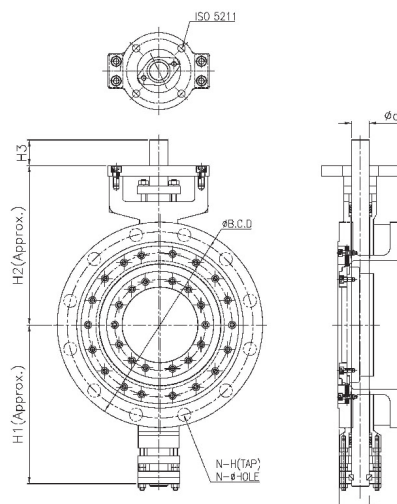
FLANGE RATING : KS 1506 10K (JIS B 2220 10K)

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

KS(JIS) 10K

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch								APPROX.	APPROX.	APPROX.	APPROX.
50A	2"	108	4	M16	120	16	15	F07	90	120	35	14
65A	2 1/2"	112	4	M16	140	18	15	F07	110	140	35	19
80A	3"	114	8	M16	150	18	15	F07	125	161	35	21
100A	4"	127	8	M16	175	18	20	F07	147	158	40	29
125A	5"	140	8	M20	210	20	20	F10	165	177	40	37
150A	6"	140	8	M20	240	22	20	F10	230	200	40	44
200A	8"	152	12	M20	290	22	30	F10	300	285	40	80
250A	10"	165	12	M22	355	24	30	F12	322	310	45	102
300A	12"	178	16	M22	400	24	30	F12	375	360	50	128
350A	14"	190	16	M22	445	26	30	F16	415	390	55	196
400A	16"	216	16	M24	510	28	50	F16	455	430	80	253
450A	18"	222	20	M24	565	30	60	F16	495	470	80	282
500A	20"	229	20	M24	620	30	65	F20	535	510	80	328
550A	22"	267	20	M30	680	32	70	F20	575	550	110	435
600A	24"	267	24	M30	730	32	75	F25	615	590	110	520
650A	26"	292	24	M30	780	34	75	F25	655	630	110	605
700A	28"	292	24	M30	840	34	80	F25	695	670	140	682
750A	30"	292	24	M30	900	36	85	F25	735	710	140	765
800A	32"	318	28	M30	950	36	90	F25	775	750	140	825
850A	34"	318	28	M30	1000	36	95	F25	815	790	140	880
900A	36"	330	28	M30	1050	38	100	F30	855	830	140	932
1000A	40"	410	28	M36	1160	40	105	F35	895	870	140	1525
1100A	44"	450	28	M36	1270	42	120	F35	935	910	140	1662
1200A	48"	470	32	M36	1380	44	140	F35	975	950	140	1811
1350A	54"	530	36	M42	1540	48	170	F48	1015	990	160	1974
1500A	60"	550	40	M42	1700	50	200	F48	1055	1030	190	4011

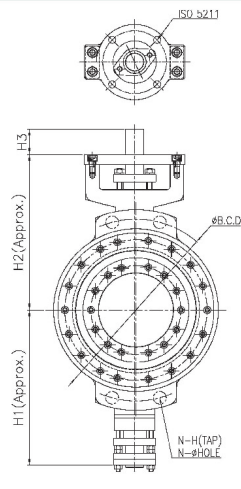
FLANGE RATING : KS 1506 10K (JIS B 2220 10K)

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

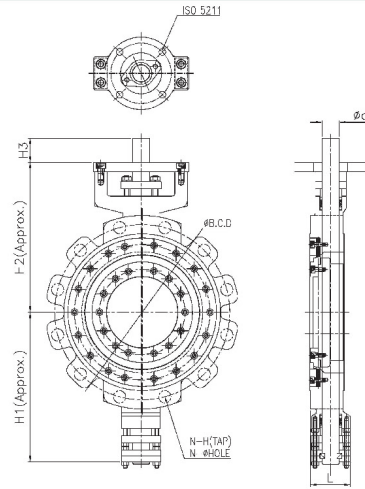
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

KS(JIS) 16K



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG							APPROX.	APPROX.	APPROX.	WAFER	LUG
50A	2"	43	43	8	M16	120	16	15	F07	90	120	35	4	4
65A	2 1/2"	46	46	8	M16	140	18	15	F07	110	140	35	6	7
80A	3"	48	48	8	M20	160	20	15	F07	125	161	35	7	8
100A	4"	54	54	8	M20	185	22	20	F07	147	158	40	13	14
125A	5"	57	57	8	M22	225	22	20	F10	165	177	40	16	18
150A	6"	57	57	12	M22	260	24	20	F10	230	200	40	19	21
200A	8"	64	64	12	M22	305	26	30	F10	300	285	40	31	34
250A	10"	71	71	12	M24	380	28	30	F12	322	310	45	44	48
300A	12"	81	81	16	M24	430	30	30	F12	375	360	50	69	76
350A	14"	92	92	16	M30x3	480	34	30	F16	415	390	55	92	101
400A	16"	102	102	16	M30x3	540	38	50	F16	455	430	80	141	155
450A	18"	114	114	20	M30x3	605	40	60	F16	495	470	80	180	198
500A	20"	127	127	20	M30x3	660	42	65	F20	535	510	80	227	250
550A	22"	154	154	20	M36x3	720	44	70	F20	575	550	110	307	338
600A	24"	154	154	24	M36x3	770	46	75	F25	615	590	110	360	396
650A	26"	165	165	24	M36x3	820	48	75	F25	655	630	110	484	532
700A	28"	165	165	24	M39x3	875	50	80	F25	695	670	140	500	550
750A	30"	190	190	24	M39x3	935	52	85	F25	735	710	140	639	703
800A	32"	190	190	24	M45x3	990	54	90	F25	775	750	140	689	758
850A	34"	203	203	24	M45x3	1040	56	95	F25	815	790	140	780	858
900A	36"	203	203	28	M45x3	1090	58	100	F30	855	830	140	925	1018
1000A	40"	216	216	28	M52x3	1210	62	105	F35	895	870	140	1176	1294
1100A	44"	240	240	32	M52x3	1310	66	120	F35	935	910	140	1488	1637
1200A	48"	254	254	32	M52x3	1420	70	140	F35	975	950	140	1728	1901
1350A	54"	280	280	32	M56x3	1590	76	170	F48	1015	990	160	2172	2389
1500A	60"	300	300	36	M56x3	1750	80	200	F48	1055	1030	190	3600	3960

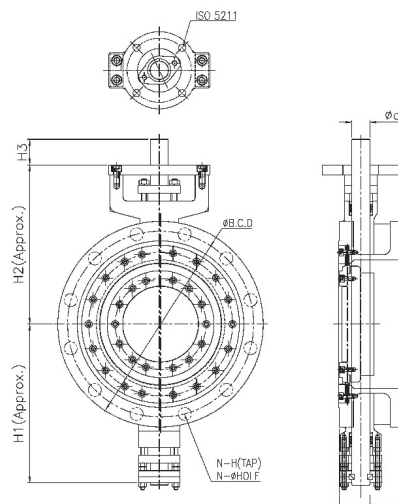
FLANGE RATING : KS 1506 16K (JIS B 2220 16K)

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

KS(JIS) 16K

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch								APPROX.	APPROX.	APPROX.	APPROX.
50A	2"	108	8	M16	120	16	15	F07	90	120	35	14
65A	2 1/2"	112	8	M16	140	18	15	F07	110	140	35	19
80A	3"	114	8	M20	160	20	15	F07	125	161	35	21
100A	4"	127	8	M20	185	22	20	F07	147	158	40	29
125A	5"	140	8	M22	225	22	20	F10	165	177	40	37
150A	6"	140	12	M22	260	24	20	F10	230	200	40	44
200A	8"	152	12	M22	305	26	30	F10	300	285	40	80
250A	10"	165	12	M24	380	28	30	F12	322	310	45	102
300A	12"	178	16	M24	430	30	30	F12	375	360	50	128
350A	14"	190	16	M30x3	480	34	30	F16	415	390	55	196
400A	16"	216	16	M30x3	540	38	50	F16	455	430	80	253
450A	18"	222	20	M30x3	605	40	60	F16	495	470	80	282
500A	20"	229	20	M30x3	660	42	65	F20	535	510	80	328
550A	22"	267	20	M36x3	720	44	70	F20	575	550	110	435
600A	24"	267	24	M36x3	770	46	75	F25	615	590	110	520
650A	26"	292	24	M36x3	820	48	75	F25	655	630	110	605
700A	28"	292	24	M39x3	875	50	80	F25	695	670	140	682
750A	30"	292	24	M39x3	935	52	85	F25	735	710	140	765
800A	32"	318	24	M45x3	990	54	90	F25	775	750	140	825
850A	34"	318	24	M45x3	1040	56	95	F25	815	790	140	880
900A	36"	330	28	M45x3	1090	58	100	F30	855	830	140	932
1000A	40"	410	28	M52x3	1210	62	105	F35	895	870	140	1525
1100A	44"	450	32	M52x3	1310	66	120	F35	935	910	140	1662
1200A	48"	470	32	M52x3	1420	70	140	F35	975	950	140	1811
1350A	54"	530	32	M56x3	1590	76	170	F48	1015	990	160	1974
1500A	60"	550	36	M56x3	1750	80	200	F48	1055	1030	190	4011

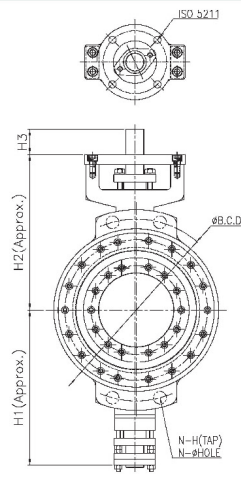
FLANGE RATING : KS 1506 16K (JIS B 2220 16K)

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

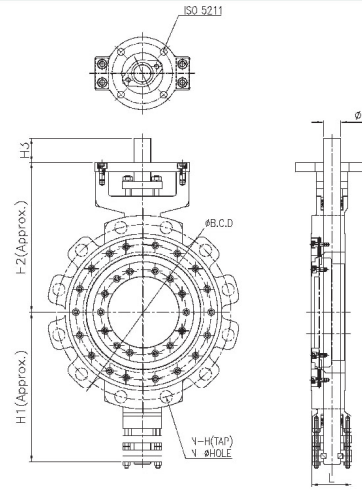
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

KS(JIS) 20K



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	ΦB,C,D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG							APPROX.	APPROX.	APPROX.	WAFER	LUG
50A	2"	43	43	8	M16	120	18	15	F07	90	120	35	4	4
65A	2 1/2"	46	46	8	M16	140	20	15	F07	110	140	35	6	7
80A	3"	48	48	8	M20	160	22	15	F07	125	161	35	7	8
100A	4"	54	54	8	M20	185	24	20	F07	147	158	40	13	14
125A	5"	57	57	8	M22	225	26	20	F10	165	177	40	16	18
150A	6"	57	57	12	M22	260	28	20	F10	230	200	40	19	21
200A	8"	64	64	12	M22	305	30	30	F10	300	285	40	31	34
250A	10"	71	71	12	M24	380	34	30	F12	322	310	45	44	48
300A	12"	81	81	16	M24	430	36	30	F12	375	360	50	69	76
350A	14"	92	92	16	M30x3	480	40	30	F16	415	390	55	92	101
400A	16"	102	102	16	M30x3	540	46	50	F16	455	430	80	141	155
450A	18"	114	114	20	M30x3	605	48	60	F16	495	470	80	180	198
500A	20"	127	127	20	M30x3	660	50	65	F20	535	510	80	227	250
550A	22"	154	154	20	M36x3	720	52	70	F20	575	550	110	307	338
600A	24"	154	154	24	M36x3	770	54	75	F25	615	590	110	360	396

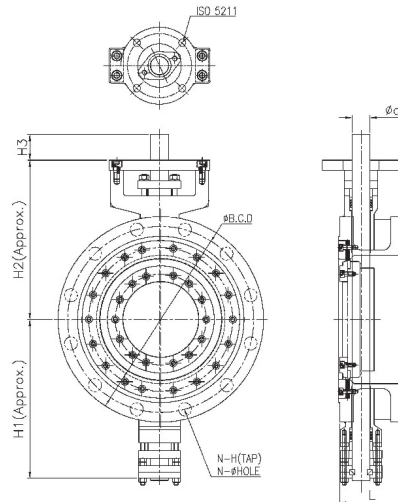
FLANGE RATING : KS 1506 20K (JIS B 2220 20K)

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

KS(JIS) 20K

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch								APPROX.	APPROX.	APPROX.	APPROX.
50A	2"	108	8	M16	120	18	15	F07	90	120	35	14
65A	2 1/2"	112	8	M16	140	20	15	F07	110	140	35	19
80A	3"	114	8	M20	160	22	15	F07	125	161	35	21
100A	4"	127	8	M20	185	24	20	F07	147	158	40	29
125A	5"	140	8	M22	225	26	20	F10	165	177	40	37
150A	6"	140	12	M22	260	28	20	F10	230	200	40	44
200A	8"	152	12	M22	305	30	30	F10	300	285	40	80
250A	10"	165	12	M24	380	34	30	F12	322	310	45	102
300A	12"	178	16	M24	430	36	30	F12	375	360	50	128
350A	14"	190	16	M30x3	480	40	30	F16	415	390	55	196
400A	16"	216	16	M30x3	540	46	50	F16	455	430	80	253
450A	18"	222	20	M30x3	605	48	60	F16	495	470	80	282
500A	20"	229	20	M30x3	660	50	65	F20	535	510	80	328
550A	22"	267	20	M36x3	720	52	70	F20	575	550	110	435
600A	24"	267	24	M36x3	770	54	75	F25	615	590	110	520

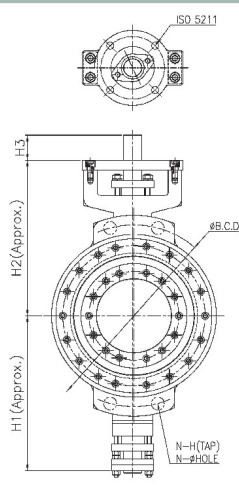
FLANGE RATING : KS 1506 20K (JIS B 2220 20K)

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

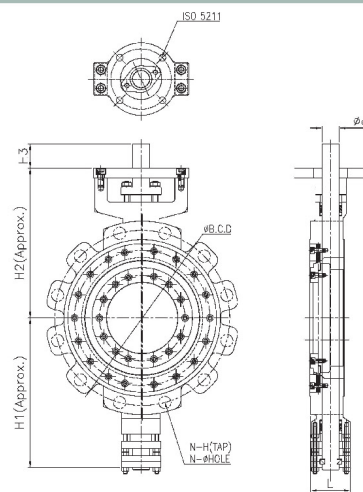
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

KS(JIS) 30K



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	ΦB, C, D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG							APPROX.	APPROX.	APPROX.	WAFER	LUG
50A	2"	43	43	8	M16	130	22	20	F10	100	105	25	19	21
65A	2 1/2"	46	46	8	M20	160	26	25	F10	103	123	25	20	22
80A	3"	48	48	8	M20	170	28	25	F10	125	161	25	22	24
100A	4"	54	54	8	M22	195	32	25	F10	147	183	30	23	25
125A	5"	57	57	8	M22	230	36	25	F10	160	200	40	26	29
150A	6"	57	57	12	M24	275	38	25	F10	192	226	45	44	49
200A	8"	64	64	12	M24	320	42	30	F12	236	268	55	64	70
250A	10"	71	71	12	M30x3	390	48	35	F14	261	299	60	86	95
300A	12"	81	81	16	M30x3	450	52	38	F14	297	332	60	109	120
350A	14"	92	92	16	M30x3	495	54	40	F14	330	371	65	198	218
400A	16"	102	102	16	M36x3	560	60	45	F16	361	405	80	263	289

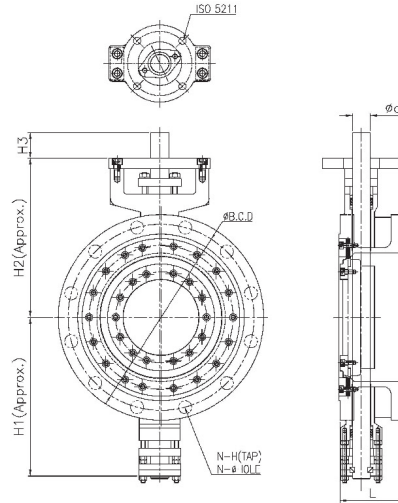
FLANGE RATING : KS 1506 30K (JIS B 2220 30K)

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

KS(JIS) 30K

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch								APPROX.	APPROX.	APPROX.	APPROX.
50A	2"	108	8	M16	130	22	20	F10	100	105	25	19
65A	2 1/2"	112	8	M20	160	26	25	F10	103	123	25	22
80A	3"	114	8	M20	170	28	25	F10	125	161	25	30
100A	4"	127	8	M22	195	32	25	F10	147	183	30	36
125A	5"	140	8	M22	230	36	25	F10	160	200	40	67.2
150A	6"	140	12	M24	275	38	25	F10	192	226	45	96
200A	8"	152	12	M24	320	42	30	F12	236	268	55	134.4
250A	10"	165	12	M30x3	390	48	35	F14	261	299	60	187.2
300A	12"	178	16	M30x3	450	52	38	F14	297	332	60	235.2
350A	14"	190	16	M30x3	495	54	40	F14	330	371	65	297
400A	16"	216	16	M36x3	560	60	45	F16	361	405	80	394.2

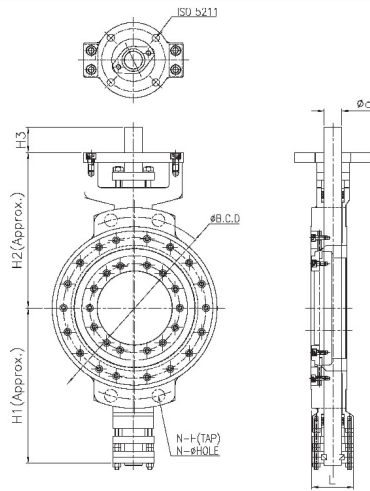
FLANGE RATING : KS 1506 30K (JIS B 2220 30K)

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

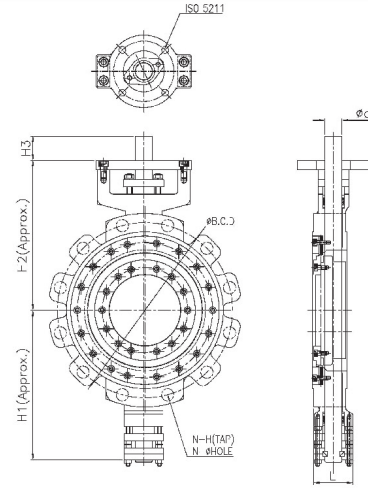
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

KS(JIS) 40K



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG							APPROX.	APPROX.	APPROX.	WAFER	LUG
50A	2"	43	43	8	M16	130	26	20	F10	100	105	25	19	21
65A	2 1/2"	46	46	8	M20	160	30	25	F10	103	123	25	20	22
80A	3"	48	48	8	M20	170	32	25	F10	125	161	25	22	24
100A	4"	54	54	8	M22	205	36	25	F10	147	183	30	23	25
125A	5"	57	57	8	M24	250	40	25	F10	160	200	40	26	29
150A	6"	57	57	12	M30x3	295	44	25	F10	192	226	45	44	49
200A	8"	64	64	12	M30x3	345	50	30	F12	236	268	55	64	70
250A	10"	71	71	12	M30x3	410	56	35	F14	261	299	60	86	95
300A	12"	81	81	16	M36x3	470	60	38	F14	297	332	60	109	120
350A	14"	92	92	16	M36x3	515	64	40	F14	330	371	65	198	218
400A	16"	102	102	16	M36x3	570	70	45	F16	361	405	80	263	289

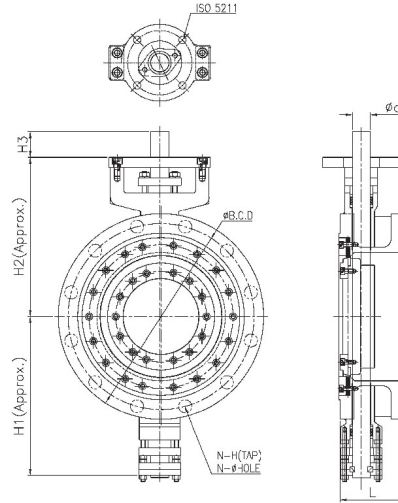
FLANGE RATING : KS 1506 40K (JIS B 2220 40K)

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

KS(JIS) 40K

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch								APPROX.	APPROX.	APPROX.	APPROX.
50A	2"	108	8	M16	130	26	20	F10	100	105	25	19
65A	2 1/2"	112	8	M20	160	30	25	F10	103	123	25	22
80A	3"	114	8	M20	170	32	25	F10	125	161	25	30
100A	4"	127	8	M22	205	36	25	F10	147	183	30	36
125A	5"	140	8	M24	250	40	25	F10	160	200	40	67.2
150A	6"	140	12	M30x3	295	44	25	F10	192	226	45	96
200A	8"	152	12	M30x3	345	50	30	F12	236	268	55	134.4
250A	10"	165	12	M30x3	410	56	35	F14	261	299	60	187.2
300A	12"	178	16	M36x3	470	60	38	F14	297	332	60	235.2
350A	14"	190	16	M36x3	515	64	40	F14	330	371	65	297
400A	16"	216	16	M36x3	570	70	45	F16	361	405	80	394.2

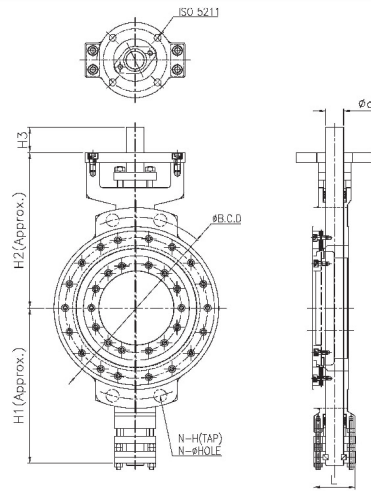
FLANGE RATING : KS 1506 40K (JIS B 2220 40K)

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

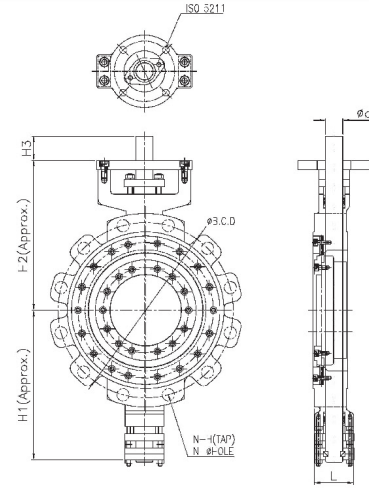
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

PN 10



WAFER TYPE



LUG TYPE

(Unit : mm)

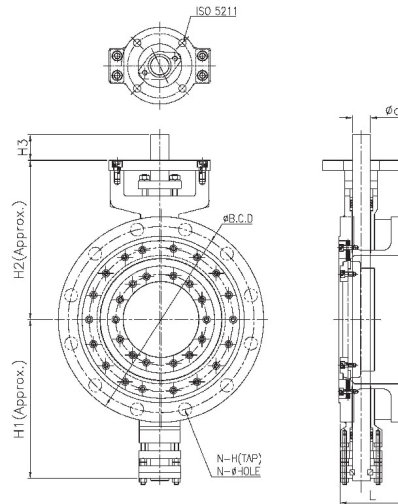
SIZE		L		N	H	ΦB,C,D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG							APPROX.	APPROX.	APPROX.	WAFER	LUG
50A	2"	43	43	4	M16	125	18	15	F07	90	120	35	4	4
65A	2 1/2"	46	46	4	M16	145	18	15	F07	110	140	35	6	7
80A	3"	48	48	4	M16	160	20	15	F07	125	161	35	7	8
100A	4"	54	54	8	M16	180	20	20	F07	147	158	40	13	14
125A	5"	57	57	8	M16	210	22	20	F10	165	177	40	16	18
150A	6"	57	57	8	M20	240	22	20	F10	230	200	40	19	21
200A	8"	64	64	8	M20	295	24	30	F10	300	285	40	31	34
250A	10"	71	71	12	M20	350	26	30	F12	322	310	45	44	48
300A	12"	81	81	12	M20	400	26	30	F12	375	360	50	69	76
350A	14"	92	92	16	M20	460	26	30	F16	415	390	55	92	101
400A	16"	102	102	16	M24	515	26	50	F16	455	430	80	141	155
500A	20"	127	127	20	M24	620	28	65	F20	495	470	80	227	250
600A	24"	154	154	20	M27	725	28	75	F25	535	510	110	360	396
700A	28"	165	165	24	M27	840	30	80	F25	575	550	140	500	550
800A	32"	190	190	24	M30	950	32	90	F25	615	590	140	689	758
900A	36"	203	203	28	M30	1050	34	100	F30	655	630	140	925	1018

FLANGE RATING : BS 4504 PN 10

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch								APPROX.	APPROX.	APPROX.	APPROX.
50A	2"	108	4	M16	125	18	15	F07	90	120	35	14
65A	2 1/2"	112	4	M16	145	18	15	F07	110	140	35	19
80A	3"	114	4	M16	160	20	15	F07	125	161	35	21
100A	4"	127	8	M16	180	20	20	F07	147	158	40	29
125A	5"	140	8	M16	210	22	20	F10	165	177	40	37
150A	6"	140	8	M20	240	22	20	F10	230	200	40	44
200A	8"	152	8	M20	295	24	30	F10	300	285	40	80
250A	10"	165	12	M20	350	26	30	F12	322	310	45	102
300A	12"	178	12	M20	400	26	30	F12	375	360	50	128
350A	14"	190	16	M20	460	26	30	F16	415	390	55	196
400A	16"	216	16	M24	515	26	50	F16	455	430	80	253
500A	20"	229	20	M24	620	28	65	F20	495	470	80	328
600A	24"	267	20	M27	725	28	75	F25	535	510	110	520
700A	28"	292	24	M27	840	30	80	F25	575	550	140	682
800A	32"	318	24	M30	950	32	90	F25	615	590	140	825
900A	36"	330	28	M30	1050	34	100	F30	655	630	140	932

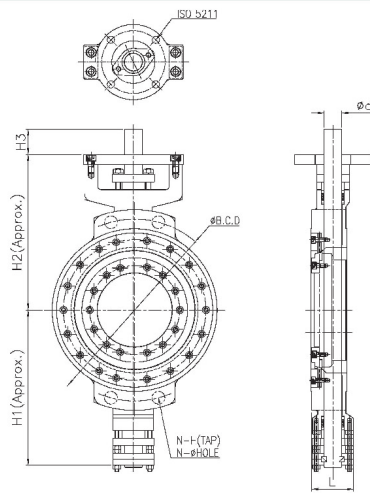
FLANGE RATING : BS 4504 PN 10

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

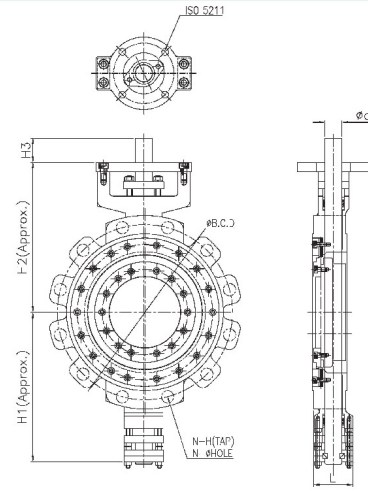
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

PN 16



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG							APPROX.	APPROX.	APPROX.	WAFER	LUG
50A	2"	43	43	4	M16	125	18	15	F07	90	120	35	4	4
65A	2 1/2"	46	46	4	M16	145	18	15	F07	110	140	35	6	7
80A	3"	48	48	8	M16	160	20	15	F07	125	161	35	7	8
100A	4"	54	54	8	M16	180	20	20	F07	147	158	40	13	14
125A	5"	57	57	8	M16	210	22	20	F10	165	177	40	16	18
150A	6"	57	57	8	M20	240	22	20	F10	230	200	40	19	21
200A	8"	64	64	12	M20	295	24	30	F10	300	285	40	31	34
250A	10"	71	71	12	M24	355	26	30	F12	322	310	45	44	48
300A	12"	81	81	12	M24	410	28	30	F12	375	360	50	69	76
350A	14"	92	92	16	M24	470	30	30	F16	415	390	55	92	101
400A	16"	102	102	16	M27	525	32	50	F16	455	430	80	141	155
500A	20"	127	127	20	M30	650	34	65	F20	495	470	80	227	250
600A	24"	154	154	20	M33	770	36	75	F25	535	510	110	360	396
700A	28"	165	165	24	M33	840	36	80	F25	575	550	140	500	550
800A	32"	190	190	24	M36	950	38	90	F25	615	590	140	689	758
900A	36"	203	203	28	M36	1050	40	100	F30	655	630	140	925	1018

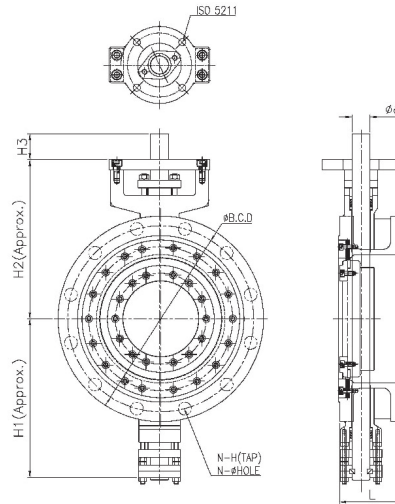
FLANGE RATING : BS 4504 PN 16

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.

(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch								APPROX.	APPROX.	APPROX.	APPROX.
50A	2"	108	4	M16	125	18	15	F07	90	120	35	14
65A	2 1/2"	112	4	M16	145	18	15	F07	110	140	35	19
80A	3"	114	8	M16	160	20	15	F07	125	161	35	21
100A	4"	127	8	M16	180	20	20	F07	147	158	40	29
125A	5"	140	8	M16	210	22	20	F10	165	177	40	37
150A	6"	140	8	M20	240	22	20	F10	230	200	40	44
200A	8"	152	12	M20	295	24	30	F10	300	285	40	80
250A	10"	165	12	M24	355	26	30	F12	322	310	45	102
300A	12"	178	12	M24	410	28	30	F12	375	360	50	128
350A	14"	190	16	M24	470	30	30	F16	415	390	55	196
400A	16"	216	16	M27	525	32	50	F16	455	430	80	253
500A	20"	229	20	M30	650	34	65	F20	495	470	80	328
600A	24"	267	20	M33	770	36	75	F25	535	510	110	520
700A	28"	292	24	M33	840	36	80	F25	575	550	140	682
800A	32"	318	24	M36	950	38	90	F25	615	590	140	825
900A	36"	330	28	M36	1050	40	100	F30	655	630	140	932

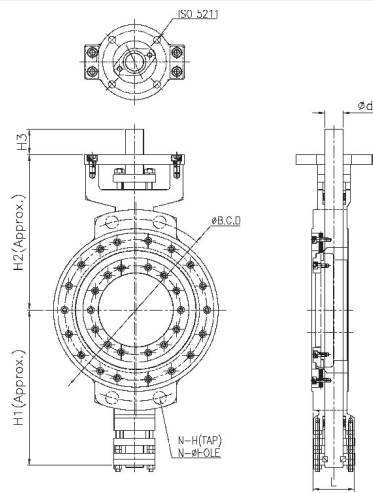
FLANGE RATING : BS 4504 PN 16

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

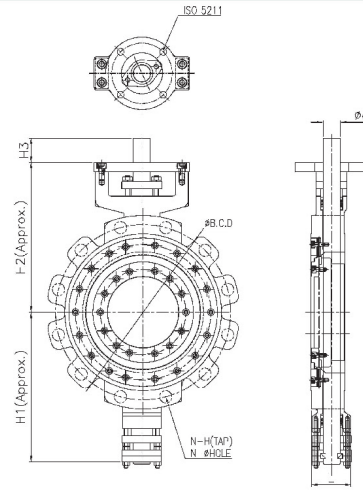
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

PN 25



WAFER TYPE



LUG TYPE

(Unit : mm)

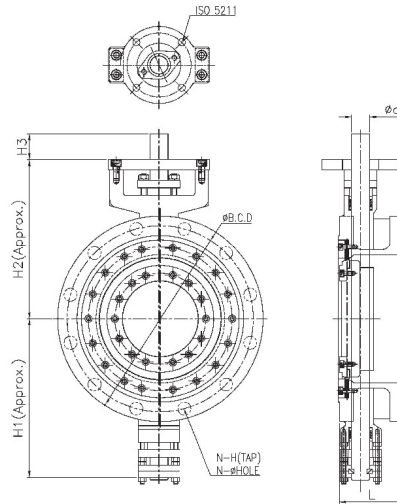
SIZE		L		N	H	ΦB,C,D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG							APPROX.	APPROX.	APPROX.	WAFER	LUG
50A	2"	43	43	4	M16	125	20	15	F07	90	120	35	4	4
65A	2 1/2"	46	46	8	M16	145	22	15	F07	110	140	35	6	7
80A	3"	48	48	8	M16	160	24	15	F07	125	161	35	7	8
100A	4"	54	54	8	M20	190	24	20	F07	147	158	40	13	14
125A	5"	57	57	8	M24	220	26	20	F10	165	177	40	16	18
150A	6"	57	57	8	M24	250	28	20	F10	230	200	40	19	21
200A	8"	64	64	12	M24	310	30	30	F10	300	285	40	31	34
250A	10"	71	71	12	M27	370	32	30	F12	322	310	45	44	48
300A	12"	81	81	16	M27	430	34	30	F12	375	360	50	69	76
350A	14"	92	92	16	M30	490	38	30	F16	415	390	55	92	101
400A	16"	102	102	16	M33	550	40	50	F16	455	430	80	141	155
500A	20"	127	127	20	M33	660	44	65	F20	495	470	80	227	250
600A	24"	154	154	20	M36	770	46	75	F25	535	510	110	360	396
700A	28"	165	165	24	M39	875	46	80	F25	575	550	140	500	550
800A	32"	190	190	24	M45	990	50	90	F25	615	590	140	689	758
900A	36"	203	203	28	M45	1090	54	100	F30	655	630	140	925	1018

FLANGE RATING : BS 4504 PN 25

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch								APPROX.	APPROX.	APPROX.	APPROX.
50A	2"	108	4	M16	125	20	15	F07	90	120	35	14
65A	2 1/2"	112	8	M16	145	22	15	F07	110	140	35	19
80A	3"	114	8	M16	160	24	15	F07	125	161	35	21
100A	4"	127	8	M20	190	24	20	F07	147	158	40	29
125A	5"	140	8	M24	220	26	20	F10	165	177	40	37
150A	6"	140	8	M24	250	28	20	F10	230	200	40	44
200A	8"	152	12	M24	310	30	30	F10	300	285	40	80
250A	10"	165	12	M27	370	32	30	F12	322	310	45	102
300A	12"	178	16	M27	430	34	30	F12	375	360	50	128
350A	14"	190	16	M30	490	38	30	F16	415	390	55	196
400A	16"	216	16	M33	550	40	50	F16	455	430	80	253
500A	20"	229	20	M33	660	44	65	F20	495	470	80	328
600A	24"	267	20	M36	770	46	75	F25	535	510	110	520
700A	28"	292	24	M39	875	46	80	F25	575	550	140	682
800A	32"	318	24	M45	990	50	90	F25	615	590	140	825
900A	36"	330	28	M45	1090	54	100	F30	655	630	140	932

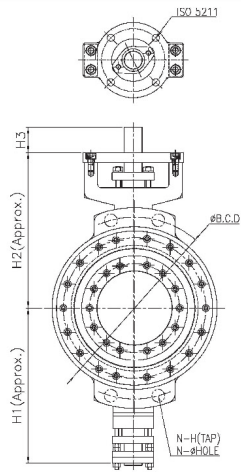
FLANGE RATING : BS 4504 PN 25

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

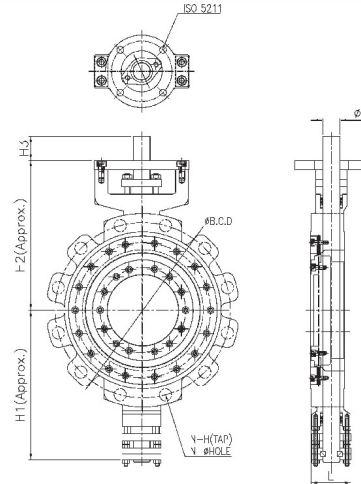
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

PN 40



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	ΦB,C,D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG							APPROX.	APPROX.	APPROX.	WAFER	LUG
50A	2"	43	43	4	M16	125	20	15	F07	90	120	35	4	4
65A	2 1/2"	46	46	8	M16	145	22	15	F07	110	140	35	6	7
80A	3"	48	48	8	M16	160	24	15	F07	125	161	35	7	8
100A	4"	54	54	8	M20	190	24	20	F07	147	158	40	13	14
125A	5"	57	57	8	M24	220	26	20	F10	165	177	40	16	18
150A	6"	57	57	8	M24	250	28	20	F10	230	200	40	19	21
200A	8"	64	64	12	M27	320	34	30	F10	300	285	40	31	34
250A	10"	71	71	12	M30	385	38	30	F12	322	310	45	44	48
300A	12"	81	81	16	M30	450	42	30	F12	375	360	50	69	76
350A	14"	92	92	16	M33	510	46	30	F16	415	390	55	92	101
400A	16"	102	102	16	M36	585	50	50	F16	455	430	80	141	155
500A	20"	127	127	20	M39	670	52	65	F20	495	470	80	227	250

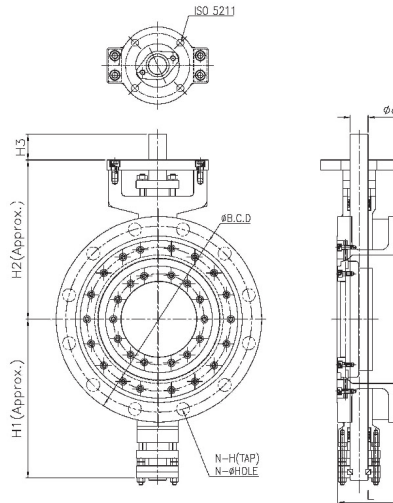
FLANGE RATING : BS 4504 PN 40

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.

(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	"FLANGE THICKNESS"	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch								APPROX.	APPROX.	APPROX.	APPROX.
50A	2"	108	4	M16	125	20	15	F07	90	120	35	14
65A	2 1/2"	112	8	M16	145	22	15	F07	110	140	35	19
80A	3"	114	8	M16	160	24	15	F07	125	161	35	21
100A	4"	127	8	M20	190	24	20	F07	147	158	40	29
125A	5"	140	8	M24	220	26	20	F10	165	177	40	37
150A	6"	140	8	M24	250	28	20	F10	230	200	40	44
200A	8"	152	12	M27	320	34	30	F10	300	285	40	80
250A	10"	165	12	M30	385	38	30	F12	322	310	45	102
300A	12"	178	16	M30	450	42	30	F12	375	360	50	128
350A	14"	190	16	M33	510	46	30	F16	415	390	55	196
400A	16"	216	16	M36	585	50	50	F16	455	430	80	253
500A	20"	229	20	M39	670	52	65	F20	495	470	80	328

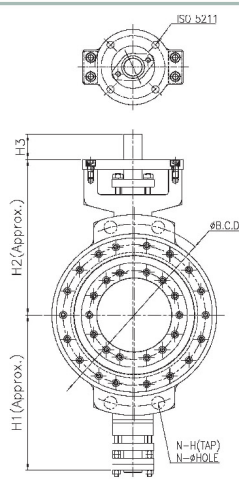
FLANGE RATING : BS 4504 PN 40

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

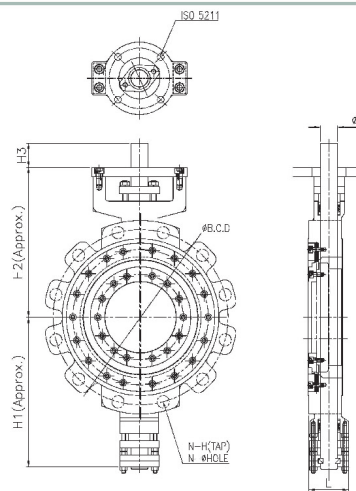
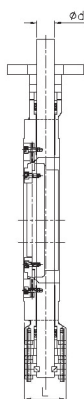
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

VALVE DIMENSION

AWWA CLASS B&D



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	ΦB,C,D	FLANGE THICKNESS		Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG				CLASS B	CLASS D			APPROX.	APPROX.	APPROX.	WAFER	LUG
100A	4"	54	54	8	15,9	190,5	15,9	15,9	20	F07	147	158	40	13	14
125A	5"	57	57	8	19,1	215,9	15,9	15,9	20	F10	165	177	40	16	18
150A	6"	57	57	8	19,1	241,3	17,5	17,5	20	F10	230	200	40	19	21
200A	8"	64	64	8	19,1	298,45	17,5	17,5	30	F10	300	285	40	31	34
250A	10"	71	71	12	22,2	361,95	17,5	17,5	30	F12	322	310	45	44	48
300A	12"	81	81	12	22,2	431,8	17,5	20,6	30	F12	375	360	50	69	76
350A	14"	92	92	12	25,4	476,25	17,5	23,8	30	F16	415	390	55	92	101
400A	16"	102	102	16	25,4	539,75	17,5	25,4	50	F16	455	430	80	141	155
450A	18"	114	114	16	28,6	577,85	17,5	27,0	60	F16	495	470	80	180	198
500A	20"	127	127	20	28,6	635	17,5	28,6	65	F20	535	510	80	227	250
550A	22"	154	154	20	31,8	692,15	19,1	30,2	70	F20	575	550	110	307	338
600A	24"	154	154	20	31,8	749,3	19,1	31,8	75	F25	615	590	110	360	396
650A	26"	165	165	24	31,8	806,45	20,6	33,3	75	F25	655	630	110	484	532
700A	28"	165	165	28	31,8	863,6	22,2	33,3	80	F25	695	670	140	500	550
750A	30"	190	190	28	31,8	914,4	0,0	34,9	85	F25	735	710	140	639	703
800A	32"	190	190	28	38,1	977,9	23,8	38,1	90	F25	775	750	140	689	758
850A	34"	203	203	32	38,1	1028,7	23,8	38,1	95	F25	815	790	140	780	858
900A	36"	203	203	32	38,1	1085,85	25,4	41,3	100	F30	855	830	140	925	1018
950A	38"	203	203	32	38,1	1149,35	25,4	41,3	100	F30	895	870	140	1008	1109
1000A	40"	216	216	36	38,1	1200,15	25,4	41,3	105	F35	935	910	140	1176	1294
1050A	42"	216	216	36	38,1	1257,3	28,6	44,5	110	F35	975	950	140	1212	1333
1100A	44"	240	240	40	38,1	1314,45	28,6	44,5	120	F35	1015	990	140	1488	1637
1150A	46"	254	254	40	38,1	1365,25	28,6	44,5	130	F35	1055	1030	140	1656	1822
1200A	48"	254	254	44	38,1	1422,4	31,8	47,6	140	F35	1095	1070	140	1728	1901
1250A	50"	274	274	44	44,5	1479,55	31,8	50,8	150	F35	1135	1110	160	1800	1980
1300A	52"	274	274	44	44,5	1536,7	31,8	50,8	160	F48	1175	1150	160	2028	2231
1350A	54"	280	280	44	44,5	1593,85	34,9	54,0	170	F48	1215	1190	160	2172	2389
1500A	60"	300	300	52	44,5	1771,65	38,1	57,2	200	F48	1255	1230	190	3600	3960

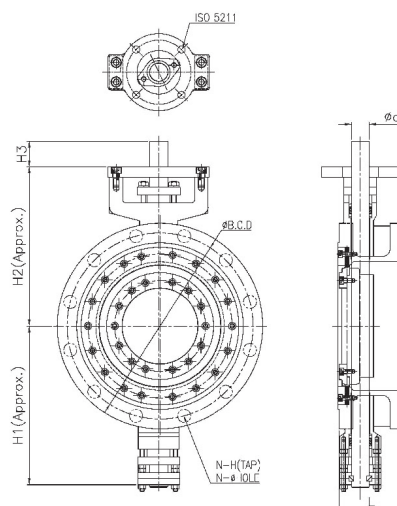
FLANGE RATING : AWWA C207 CLASS B & CLASS D

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

AWWA CLASS B&D

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	FLANGE THICKNESS		Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch	WAFER				CLASS B	CLASS D			APPROX.	APPROX.	APPROX.	APPROX.
100A	4"	127	8	15,9	190,5	15,9	15,9	20	F07	147	158	40	29
125A	5"	140	8	19,1	215,9	15,9	15,9	20	F10	165	177	40	37
150A	6"	140	8	19,1	241,3	17,5	17,5	20	F10	230	200	40	44
200A	8"	152	8	19,1	298,45	17,5	17,5	30	F10	300	285	40	80
250A	10"	165	12	22,2	361,95	17,5	17,5	30	F12	322	310	45	102
300A	12"	178	12	22,2	431,8	17,5	20,6	30	F12	375	360	50	128
350A	14"	190	12	25,4	476,25	17,5	23,8	30	F16	415	390	55	196
400A	16"	216	16	25,4	539,75	17,5	25,4	50	F16	455	430	80	253
450A	18"	222	16	28,6	577,85	17,5	27,0	60	F16	495	470	80	282
500A	20"	229	20	28,6	635	17,5	28,6	65	F20	535	510	80	328
550A	22"	267	20	31,8	692,15	19,1	30,2	70	F20	575	550	110	435
600A	24"	267	20	31,8	749,3	19,1	31,8	75	F25	615	590	110	520
650A	26"	292	24	31,8	806,45	20,6	33,3	75	F25	655	630	110	605
700A	28"	292	28	31,8	863,6	22,2	33,3	80	F25	695	670	140	682
750A	30"	292	28	31,8	914,4	0,0	34,9	85	F25	735	710	140	765
800A	32"	318	28	38,1	977,9	23,8	38,1	90	F25	775	750	140	825
850A	34"	318	32	38,1	1028,7	23,8	38,1	95	F25	815	790	140	880
900A	36"	330	32	38,1	1085,85	25,4	41,3	100	F30	855	830	140	932
950A	38"	330	32	38,1	1149,35	25,4	41,3	100	F30	895	870	140	1117
1000A	40"	410	36	38,1	1200,15	25,4	41,3	105	F35	935	910	140	1525
1050A	42"	430	36	38,1	1257,3	28,6	44,5	110	F35	975	950	140	1662
1100A	44"	450	40	38,1	1314,45	28,6	44,5	120	F35	1015	990	140	1811
1150A	46"	470	40	38,1	1365,25	28,6	44,5	130	F35	1055	1030	140	1974
1200A	48"	470	44	38,1	1422,4	31,8	47,6	140	F35	1095	1070	140	2152
1250A	50"	490	44	44,5	1479,55	31,8	50,8	150	F35	1135	1110	160	2346
1300A	52"	490	44	44,5	1536,7	31,8	50,8	160	F48	1175	1150	160	2557
1350A	54"	530	44	44,5	1593,85	34,9	54,0	170	F48	1215	1190	160	2787
1500A	60"	550	52	44,5	1771,65	38,1	57,2	200	F48	1255	1230	190	4011

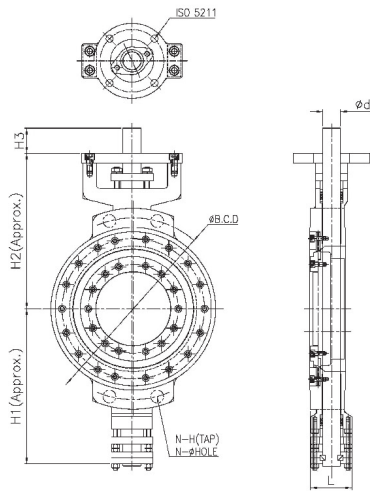
FLANGE RATING : AWWA C207 CLASS B & CLASS D

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

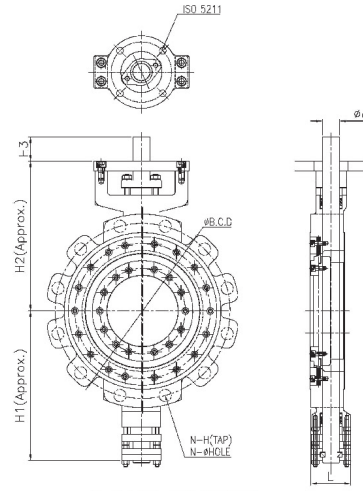
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES,

VALVE DIMENSION

AWWA CLASS E



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	ΦB.C.D	FLANGE THICKNESS		Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG				CLASS B	CLASS D			APPROX.	APPROX.	APPROX.	WAFER	LUG
100A	4"	54	54	8	15.9	190.5	28.6	20	F07	147	158	40	13	14	14
125A	5"	57	57	8	19.1	215.9	30.2	20	F10	165	177	40	16	18	18
150A	6"	57	57	8	19.1	241.3	33.4	20	F10	230	200	40	19	21	21
200A	8"	64	64	8	19.1	298.5	38.1	30	F10	300	285	40	31	34	34
250A	10"	71	71	12	22.2	362.0	39.7	30	F12	322	310	45	44	48	48
300A	12"	81	81	12	22.2	431.8	44.5	30	F12	375	360	50	69	76	76
350A	14"	92	92	12	25.4	476.3	47.6	30	F16	415	390	55	92	101	101
400A	16"	102	102	16	25.4	539.8	50.8	50	F16	455	430	80	141	155	155
450A	18"	114	114	16	28.6	577.9	54.0	60	F16	495	470	80	180	198	198
500A	20"	127	127	20	28.6	635.0	60.3	65	F20	535	510	80	227	250	250
550A	22"	154	154	20	31.8	692.2	63.5	70	F20	575	550	110	307	338	338
600A	24"	154	154	20	31.8	749.3	66.7	75	F25	615	590	110	360	396	396
650A	26"	165	165	24	31.8	806.5	69.9	75	F25	655	630	110	484	532	532
700A	28"	165	165	28	31.8	863.6	69.9	80	F25	695	670	140	500	550	550
750A	30"	190	190	28	31.8	914.4	73.0	85	F25	735	710	140	639	703	703
800A	32"	190	190	28	38.1	977.9	76.2	90	F25	775	750	140	689	758	758
850A	34"	203	203	32	38.1	1028.7	76.2	95	F25	815	790	140	780	858	858
900A	36"	203	203	32	38.1	1085.9	79.4	100	F30	855	830	140	925	1018	1018
950A	38"	203	203	32	38.1	1149.4	79.4	100	F30	895	870	140	1008	1109	1109
1000A	40"	216	216	36	38.1	1200.2	82.6	105	F35	935	910	140	1176	1294	1294
1050A	42"	216	216	36	38.1	1257.3	85.7	110	F35	975	950	140	1212	1333	1333
1100A	44"	240	240	40	38.1	1314.5	85.7	120	F35	1015	990	140	1488	1637	1637
1150A	46"	254	254	40	38.1	1365.3	87.3	130	F35	1055	1030	140	1656	1822	1822
1200A	48"	254	254	44	38.1	1422.4	88.9	140	F35	1095	1070	140	1728	1901	1901
1250A	50"	274	274	44	44.5	1479.6	88.9	150	F35	1135	1110	160	1800	1980	1980
1300A	52"	274	274	44	44.5	1536.7	92.1	160	F48	1175	1150	160	2028	2231	2231
1350A	54"	280	280	44	44.5	1593.9	95.3	170	F48	1215	1190	160	2172	2389	2389
1500A	60"	300	300	52	44.5	1771.7	98.4	200	F48	1255	1230	190	3600	3960	3960

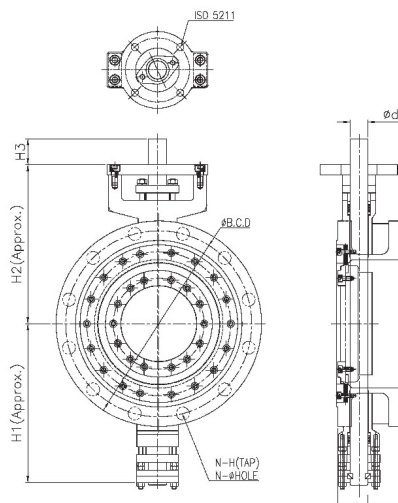
FLANGE RATING : AWWA C207 CLASS E

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

AWWA CLASS E

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	FLANGE THICKNESS		Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch	WAFER				CLASS B	CLASS D			APPROX.	APPROX.	APPROX.	APPROX.
100A	4"	127	8	15,9	190,5	28,6	20	F07	147	158	40	29	29
125A	5"	140	8	19,1	215,9	30,2	20	F10	165	177	40	37	37
150A	6"	140	8	19,1	241,3	33,4	20	F10	230	200	40	44	44
200A	8"	152	8	19,1	298,5	38,1	30	F10	300	285	40	80	80
250A	10"	165	12	22,2	362,0	39,7	30	F12	322	310	45	102	102
300A	12"	178	12	22,2	431,8	44,5	30	F12	375	360	50	128	128
350A	14"	190	12	25,4	476,3	47,6	30	F16	415	390	55	196	196
400A	16"	216	16	25,4	539,8	50,8	50	F16	455	430	80	253	253
450A	18"	222	16	28,6	577,9	54,0	60	F16	495	470	80	282	282
500A	20"	229	20	28,6	635,0	60,3	65	F20	535	510	80	328	328
550A	22"	267	20	31,8	692,2	63,5	70	F20	575	550	110	435	435
600A	24"	267	20	31,8	749,3	66,7	75	F25	615	590	110	520	520
650A	26"	292	24	31,8	806,5	69,9	75	F25	655	630	110	605	605
700A	28"	292	28	31,8	863,6	69,9	80	F25	695	670	140	682	682
750A	30"	292	28	31,8	914,4	73,0	85	F25	735	710	140	765	765
800A	32"	318	28	38,1	977,9	76,2	90	F25	775	750	140	825	825
850A	34"	318	32	38,1	1028,7	76,2	95	F25	815	790	140	880	880
900A	36"	330	32	38,1	1085,9	79,4	100	F30	855	830	140	932	932
950A	38"	330	32	38,1	1149,4	79,4	100	F30	895	870	140	1117	1117
1000A	40"	410	36	38,1	1200,2	82,6	105	F35	935	910	140	1525	1525
1050A	42"	430	36	38,1	1257,3	85,7	110	F35	975	950	140	1662	1662
1100A	44"	450	40	38,1	1314,5	85,7	120	F35	1015	990	140	1811	1811
1150A	46"	470	40	38,1	1365,3	87,3	130	F35	1055	1030	140	1974	1974
1200A	48"	470	44	38,1	1422,4	88,9	140	F35	1095	1070	140	2152	2152
1250A	50"	490	44	44,5	1479,6	88,9	150	F35	1135	1110	160	2346	2346
1300A	52"	490	44	44,5	1536,7	92,1	160	F48	1175	1150	160	2557	2557
1350A	54"	530	44	44,5	1593,9	95,3	170	F48	1215	1190	160	2787	2787
1500A	60"	550	52	44,5	1771,7	98,4	200	F48	1255	1230	190	4011	4011

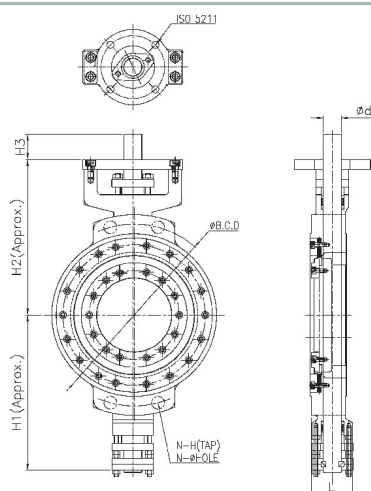
FLANGE RATING : AWWA C207 CLASS E

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

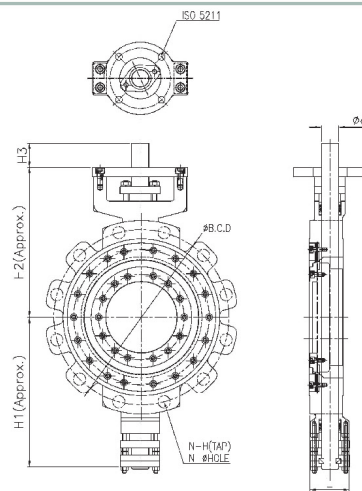
* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES,

VALVE DIMENSION

AWWA CLASS F



WAFER TYPE



LUG TYPE

(Unit : mm)

SIZE		L		N	H	ΦB.C.D	FLANGE THICKNESS	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)	
mm	inch	WAFER	LUG							APPROX.	APPROX.	APPROX.	WAFER	LUG
100A	4"	54	54	8	19,1	200,2	28,7	20	F07	147	158	40	13	14
125A	5"	57	57	8	19,1	235,0	30,7	20	F10	165	177	40	16	18
150A	6"	57	57	12	19,1	269,7	33,3	20	F10	230	200	40	19	21
200A	8"	64	64	12	22,2	330,2	33,3	30	F10	300	285	40	31	34
250A	10"	71	71	16	25,4	387,4	38,1	30	F12	322	310	45	44	48
300A	12"	81	81	16	28,6	450,9	41,4	30	F12	375	360	50	69	76
350A	14"	92	92	20	28,6	514,4	49,3	30	F16	415	390	55	92	101
400A	16"	102	102	20	31,8	571,5	54,4	50	F16	455	430	80	141	155
450A	18"	114	114	24	31,8	628,7	57,2	60	F16	495	470	80	180	198
500A	20"	127	127	24	31,8	685,8	59,2	65	F20	535	510	80	227	250
550A	22"	154	154	24	30,5	743,0	63,5	70	F20	575	550	110	307	338
600A	24"	154	154	24	38,1	812,8	68,3	75	F25	615	590	110	360	396
650A	26"	165	165	28	44,5	876,3	76,2	75	F25	655	630	110	484	532
700A	28"	165	165	28	44,5	939,8	79,5	80	F25	695	670	140	500	550
750A	30"	190	190	28	44,5	997,0	80,0	85	F25	735	710	140	639	703
800A	32"	190	190	28	44,5	1054,1	82,6	90	F25	775	750	140	689	758
850A	34"	203	203	28	44,5	1104,9	85,9	95	F25	815	790	140	780	858
900A	36"	203	203	32	50,8	1168,4	87,9	100	F30	855	830	140	925	1018
950A	38"	203	203	32	50,8	1219,2	88,9	100	F30	895	870	140	1008	1109
1000A	40"	216	216	36	50,8	1276,4	92,2	105	F35	935	910	140	1176	1294
1050A	42"	216	216	36	50,8	1327,2	96,8	110	F35	975	950	140	1212	1333
1100A	44"	240	240	36	50,8	1397,0	101,6	120	F35	1015	990	140	1488	1637
1150A	46"	254	254	40	50,8	1454,2	104,9	130	F35	1055	1030	140	1656	1822
1200A	48"	254	254	40	50,8	1543,1	114,3	140	F35	1095	1070	140	1728	1901

FLANGE RATING : AWWA C207 CLASS F

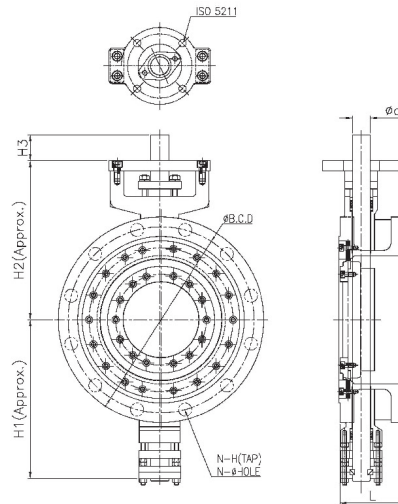
L = FACE TO FACE DIMENSIONS ACCORDING TO API 609.

(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

AWWA CLASS F

FLANGE TYPE



(Unit : mm)

SIZE		L	N	H	ΦB.C.D	FLANGE THICKNESS	Φd	ISO5211	H1	H2	H3	WEIGHT(kg)
mm	inch	WAFER							APPROX.	APPROX.	APPROX.	APPROX.
100A	4"	127	8	19,1	200,2	28,7	20	F07	147	158	40	29
125A	5"	140	8	19,1	235,0	30,7	20	F10	165	177	40	37
150A	6"	140	12	19,1	269,7	33,3	20	F10	230	200	40	44
200A	8"	152	12	22,2	330,2	33,3	30	F10	300	285	40	80
250A	10"	165	16	25,4	387,4	38,1	30	F12	322	310	45	102
300A	12"	178	16	28,6	450,9	41,4	30	F12	375	360	50	128
350A	14"	190	20	28,6	514,4	49,3	30	F16	415	390	55	196
400A	16"	216	20	31,8	571,5	54,4	50	F16	455	430	80	253
450A	18"	222	24	31,8	628,7	57,2	60	F16	495	470	80	282
500A	20"	229	24	31,8	685,8	59,2	65	F20	535	510	80	328
550A	22"	267	24	30,5	743,0	63,5	70	F20	575	550	110	435
600A	24"	267	24	38,1	812,8	68,3	75	F25	615	590	110	520
650A	26"	292	28	44,5	876,3	76,2	75	F25	655	630	110	605
700A	28"	292	28	44,5	939,8	79,5	80	F25	695	670	140	682
750A	30"	292	28	44,5	997,0	80,0	85	F25	735	710	140	765
800A	32"	318	28	44,5	1054,1	82,6	90	F25	775	750	140	825
850A	34"	318	28	44,5	1104,9	85,9	95	F25	815	790	140	880
900A	36"	330	32	50,8	1168,4	87,9	100	F30	855	830	140	932
950A	38"	330	32	50,8	1219,2	88,9	100	F30	895	870	140	1117
1000A	40"	410	36	50,8	1276,4	92,2	105	F35	935	910	140	1525
1050A	42"	430	36	50,8	1327,2	96,8	110	F35	975	950	140	1662
1100A	44"	450	36	50,8	1397,0	101,6	120	F35	1015	990	140	1811
1150A	46"	470	40	50,8	1454,2	104,9	130	F35	1055	1030	140	1974
1200A	48"	470	40	50,8	1543,1	114,3	140	F35	1095	1070	140	2152

FLANGE RATING : AWWA C207 CLASS F

L = FACE TO FACE DIMENSIONS ACCORDING TO API 609,
(EN 588 / ISO 5752 / BS 5155 / DIN 3202 ON REQUEST)

* PLEASE CONTACT THE SALES OFFICE FOR OTHER SIZES.

ASME CLASS 150LB WAFER/LUG/FLANGE TYPE

TRIPLE OFFSET Cv VALUE
ANSI Class 150

SIZE		unit	Cv relating to the disc opening angle of the disc									
mm	inch		10°	20°	30°	40°	50°	60°	70°	80°	90°	
2	50	Cv	2,0	6,1	12,3	19,2	28,9	41,0	68,4	77	87	
		kv	1,7	5,2	10,5	16,4	24,7	35,2	5,9	67	76	
2,5	65	Cv	2,9	10,0	20,0	31,4	47,0	67,5	111,2	125	143	
		kv	2,5	8,6	17,1	26,9	40,3	58,0	95,0	109	124	
3	80	Cv	4,9	17,3	34,6	54,3	81,7	115,9	192,9	219	247	
		kv	4,3	14,8	29,6	46,6	71,3	99,8	166,3	190	214	
4	100	Cv	8,7	30,6	61,2	96,0	144,4	205,2	342,0	385	437	
		kv	7,5	26,2	52,4	82,7	123,5	175,8	294,5	333	375	
5	125	Cv	14,4	50,5	101	159	238	339	565	637	722	
		kv	12,4	43,3	86	138	204	291	485	551	622	
6	150	Cv	21,9	77	153	240	361	513	852	964	1093	
		kv	18,7	67	133	209	309	442	732	827	936	
8	200	Cv	40	140	280	439	660	938	1558	1758	1995	
		kv	34	120	242	376	570	803	1340	1511	1710	
10	250	Cv	61	214	428	670	1003	1430	2371	2675	3040	
		kv	52	185	371	575	860	1226	2033	2294	2608	
12	300	Cv	89	314	627	983	1473	2100	3483	3929	4465	
		kv	77	271	542	846	1264	1800	2988	3368	3829	
14	350	Cv	110	386	774	1212	1819	2590	4299	4850	5510	
		kv	95	333	665	1040	1563	2218	3686	4161	4722	
16	400	Cv	152	532	1064	1672	2508	3572	5928	6688	7600	
		kv	130	456	912	1435	2152	3064	5083	5733	6512	
18	450	Cv	200	698	1397	2195	3292	4688	7781	8778	9975	
		kv	171	599	1197	1881	2822	4019	6669	7524	8550	
20	500	Cv	266	931	1862	2926	4389	6251	10374	11704	13300	
		kv	228	798	1596	2508	3762	5358	8892	10032	11400	
22	550	Cv	347	1211	2423	3805	5706	8127	13486	15215	17290	
		kv	299	1040	2081	3263	4893	6964	11557	13044	14815	
24	600	Cv	399	1397	2793	4389	6584	9377	15561	17556	19950	
		kv	342	1197	2394	3762	5643	8037	13338	15043	17095	
26	650	Cv	475	1663	3325	5225	7838	11163	18525	20900	23750	
		kv	409	1425	2850	4479	6717	10232	15875	17912	20354	
28	700	Cv	551	1929	3857	6061	9092	12949	21489	24244	27550	
		kv	475	1653	3306	5197	7790	11096	18416	20777	23608	
30	750	Cv	637	2228	4456	7002	10502	14958	24824	28006	31825	
		kv	546	1910	3819	5999	9006	12820	21271	24002	27275	
32	800	Cv	779	2727	5453	8569	12854	18307	30381	34276	38950	
		kv	670	2337	4674	7344	11015	15689	26035	29374	33378	
34	850	Cv	912	3192	6384	10032	15048	21432	35568	40128	45600	
		kv	784	2736	5472	8598	12896	18368	30481	34385	39078	
36	900	Cv	1045	3658	7315	11495	17243	24558	40755	45980	52250	
		kv	898	3135	6270	9852	14777	21043	34922	39401	44774	
38	950	Cv	1164	4071	8142	12792	19190	27327	45349	51163	58140	
		kv	998	3491	6983	10963	16445	23418	38860	43843	49823	
40	1000	Cv	1330	4655	9310	14630	21945	31255	51870	58520	66500	
		kv	1140	3990	7980	12540	18805	26785	44451	50146	56986	
42	1050	Cv	1430	4992	9985	15685	23465	33511	55613	62743	71298	
		kv	1226	4280	8560	13443	20169	28719	47657	53765	61095	
44	1100	Cv	1653	5786	11571	18183	27275	38846	64467	72732	82650	
		kv	1420	4959	9918	15585	23375	33288	55243	62325	70823	
46	1150	Cv	1881	6584	13167	20691	31037	44204	73359	82764	94050	
		kv	1615	5643	11286	17732	26595	37881	62862	70922	80593	
48	1200	Cv	1976	6916	13832	21736	32604	46436	77064	86944	98800	
		kv	1696	5928	11856	18625	27940	39796	66039	74504	84664	
50	1250	Cv	2199	7690	15376	24163	36243	51618	85662	96644	109820	
		kv	1886	6593	13177	20710	31056	44232	73407	82812	94107	

ASME CLASS 150LB WAFER/LUG/FLANGE TYPE

TRIPLE OFFSET Cv VALUE
ANSI Class 150

SIZE		unit	Cv relating to the disc opening angle of the disc								
mm	inch		10°	20°	30°	40°	50°	60°	70°	80°	90°
52	1300	Cv	2385	8341	16682	26211	39316	55993	92924	104842	119130
		kv	2043	7154	14298	22458	33687	47985	79629	89832	102087
54	1350	Cv	2537	8878	17756	27902	41852	59608	98924	111606	126825
		kv	2176	7610	15214	23912	35863	51082	84769	95637	108680
56	1400	Cv	2831	9909	19817	31141	46712	66529	110409	124564	141550
		kv	2427	8493	16981	26686	40028	57010	94611	106742	121296
58	1450	Cv	2926	10241	20482	32186	48279	68761	114114	128744	146300
		kv	2508	8778	17551	21883	41373	58924	97784	110324	125372
60	1500	Cv	3021	10574	21147	33231	49847	70994	117819	132924	151050
		kv	2589	9063	18121	28481	42717	60838	100966	113905	129438
64	1600	Cv	3287	11505	23009	36157	54236	77245	128193	144628	164350
		kv	2817	9861	19717	30984	46474	66191	109849	123937	140838
66	1650	Cv	3458	12103	24206	38038	57057	81263	134862	152152	172900
		kv	2964	10374	20743	32595	48892	69635	115568	130378	148162
72	1800	Cv	3819	13367	26733	42009	63014	89747	148941	168036	190950
		kv	3273	11457	22909	36005	53998	76907	127633	143992	163628



ASME CLASS 300LB WAFFER/LUG/FLANGE TYPE

TRIPLE OFFSET Cv VALUE
ANSI Class 300

SIZE		unit	Cv relating to the disc opening angle of the disc								
mm	inch		10°	20°	30°	40°	50°	60°	70°	80°	90°
2	50	Cv	1,7	6,1	12,3	19,2	28,9	41,0	68	77	87
		kv	1,5	5,2	10,5	16,4	24,7	35,2	59	67	76
2,5	65	Cv	2,9	10,0	20,0	31,4	47,0	67,5	111	125	143
		kv	2,5	8,6	17,1	26,9	40,4	58,0	95	109	124
3	80	Cv	4,9	17,3	34,7	54,3	81,7	115,9	193	219	247
		kv	4,3	14,8	29,9	47	71	100	166	190	214
4	100	Cv	8,7	30,6	61,3	96,0	144,4	205,2	342	385	437
		kv	7,5	26,2	52,7	83	124	176	295	333	375
5	125	Cv	14,4	50,5	100,7	158,7	238,5	339,2	565	637	722
		kv	12	43	86	138	204	291	485	551	622
6	150	Cv	22	77	153	240	361	513	852	964	1093
		kv	19	67	133	209	309	437	732	827	936
8	200	Cv	36	126	253	397	596	850	1411	1591	1805
		kv	31	109	219	342	513	732	1207	1368	1549
10	250	Cv	53	186	372	585	879	1250	2076	2342	2660
		kv	46	162	319	504	755	1074	1781	2009	2280
12	300	Cv	78	273	546	860	1287	1834	3040	3430	3895
		kv	67	234	470	741	1102	1577	2603	2940	3339
14	350	Cv	105	366	732	1150	1724	2456	4076	4598	5225
		kv	90	314	627	988	1477	2104	3496	3943	4479
16	400	Cv	144	505	1012	1591	2385	3396	5634	6356	7220
		kv	124	433	869	1368	2043	2907	4826	5444	6189
18	450	Cv	188	660	1321	2071	3107	4422	7339	8279	9405
		kv	162	570	1131	1777	2660	3791	6289	7097	8061
20	500	Cv	247	865	1729	2717	4076	5805	9633	10868	12350
		kv	214	741	1482	2328	3496	4973	8256	9315	10583
24	600	Cv	371	1297	2594	4076	6113	8707	14450	16302	18525
		kv	318	1112	2223	3496	5239	7462	12383	13970	15875
28	700	Cv	543	1905	3805	5980	8968	12773	21195	23912	27170
		kv	466	1634	3263	5125	7676	10944	18164	20492	23285
30	750	Cv	641	2242	4484	7044	10569	15048	24976	28177	32015
		kv	551	1924	3843	6042	9054	12896	21404	24149	27436
32	800	Cv	774	2703	5401	8488	12730	18131	30087	33944	38570
		kv	665	2318	4627	7277	10906	15542	25783	29089	33051
36	900	Cv	998	3482	6959	10935	16397	23356	38755	43724	49685
		kv	855	2983	5966	9367	14051	20017	33212	37468	42574
40	1000	Cv	1311	4589	9177	14421	21632	30809	51129	57684	65550
		kv	1126	3933	7866	12360	18539	26401	43814	49429	56174
42	1050	Cv	1397	4878	9752	15324	22981	32732	54316	61280	69635
		kv	1197	4180	8360	13129	19694	28054	46545	52516	59670
44	1100	Cv	1615	5653	11305	17765	26648	37953	62985	71060	80750
		kv	1387	4845	9690	15229	22838	32528	53974	60895	69198
48	1200	Cv	1957	6850	13699	21527	32291	45990	76323	86108	97850
		kv	1677	5871	11742	18449	27674	39411	65403	73787	83847

ASME CLASS 600LB WAFER/LUG/FLANGE TYPE

TRIPLE OFFSET Cv VALUE
ANSI Class 600

SIZE		unit	Cv relating to the disc opening angle of the disc								
mm	inch		10°	20°	30°	40°	50°	60°	70°	80°	90°
3	80	Cv	2,9	10,4	20,6	32,4	48,6	69,3	114	130	147
		kv	2,6	8,8	17,7	27,7	41,6	59,3	100	1064	128
4	100	Cv	4,8	17,0	33,9	53,3	80,0	114	190	214	242
		kv	4,2	14,5	29,1	45,7	68,5	100	162	185	209
5	125	Cv	11,0	38,6	77,1	124	182	261	432	485	551
		kv	9,4	33,1	66,1	105	157	223	371	418	475
6	150	Cv	19,4	67,8	136	214	323	456	755	855	969
		kv	16,6	58,1	119	185	276	390	651	732	831
8	200	Cv	26	90	181	282	428	603	1002	1131	1283
		kv	22	77	157	242	371	518	860	969	1102
10	250	Cv	39	137	276	428	646	917	1520	1715	1948
		kv	33	119	238	371	551	789	1302	1473	1672
12	300	Cv	53	186	375	585	879	1250	2076	2342	2660
		kv	46	162	323	504	755	1074	1781	2009	2280
14	350	Cv	74	259	523	817	1226	1743	2893	3263	3705
		kv	64	223	447	703	1055	1492	2480	2793	3178
16	400	Cv	97	339	679	1069	1601	2280	3781	4266	4845
		kv	83	290	584	917	1373	1952	3240	3658	4152
18	450	Cv	105	366	732	1150	1724	2456	4076	4598	5225
		kv	90	314	627	988	1477	2104	3496	3943	4479
20	500	Cv	150	527	1055	1653	2480	3529	5857	6607	7505
		kv	157	451	903	1416	2123	3026	5016	5662	6432
24	600	Cv	211	741	1477	2323	3482	4959	8227	9282	10545
		kv	181	637	1268	1990	2983	4247	7049	7952	9039

TORQUE TABLE

ASME CLASS 150LB METAL SEAT

ASME CLASS 150LB
METAL SEAT

SIZE		5 Bar		10 Bar		15 Bar		20 Bar	
mm	inch	N,m	Kgf,m	N,m	Kgf,m	N,m	Kgf,m	N,m	Kgf,m
50	2	70	7,1	77	7,9	78,4	8,0	79,8	8,1
65	2 1/2	75,6	7,7	79,8	8,1	84	8,6	84	8,6
80	3	79,8	8,1	84	8,6	91	9,3	98	10,0
100	4	107,8	11,0	119	12,1	126	12,9	133	13,6
125	5	133	13,6	147	15,0	154	15,7	161	16,4
150	6	161	16,4	168	17,1	182	18,6	196	20,0
200	8	245	25,0	266	27,1	294	30,0	329	33,6
250	10	357	36,4	413	42,1	490	50,0	539	55,0
300	12	441	45,0	568,4	58,0	700	71,4	833	85,0
350	14	784	80,0	1029	105,0	1274	130,0	1519	155,0
400	16	980	100,0	1372	140,0	1617	165,0	1911	195,0
450	18	1372	140,0	1764	180,0	2156	220,0	2646	270,0
500	20	1792	182,9	2352	240,0	3024	308,6	3696	377,1
550	22	2128	217,1	2912	297,1	3640	371,4	4480	457,1
600	24	2744	280,0	3584	365,7	4424	451,4	5376	548,6
650	26	3360	342,9	4564	465,7	5600	571,4	6720	685,7
700	28	4256	434,3	5488	560,0	6832	697,1	8400	857,1
750	30	4704	480,0	6160	628,6	7728	788,6	9191	937,9
800	32	5488	560,0	7168	731,4	8960	914,3	10640	1085,7
850	34	6720	685,7	8736	891,4	10640	1085,7	13440	1371,4
900	36	7840	800,0	10080	1028,6	12320	1257,1	15680	1600,0
950	38	8960	914,3	11200	1142,9	14560	1485,7	17920	1828,6
1000	40	10080	1028,6	13440	1371,4	16800	1714,3	20160	2057,1
1050	42	11200	1142,9	15680	1600,0	19040	1942,9	21280	2171,4
1100	44	13440	1371,4	17920	1828,6	20720	2114,3	24080	2457,1
1150	46	15680	1600,0	19040	1942,9	22400	2285,7	26887	2743,6
1200	48	17920	1828,6	21280	2171,4	25200	2571,4	30247	3086,4
1250	50	19880	2028,6	23660	2414,3	27860	2842,9	33040	3371,4
1300	52	22120	2257,1	26320	2685,7	30800	3142,9	36540	3728,6
1350	54	25200	2571,4	29400	3000,0	34580	3528,6	40600	4142,9
1400	56	28560	2914,3	33600	3428,6	39200	4000,0	45360	4628,6
1450	58	33040	3371,4	38920	3971,4	45500	4642,9	52780	5385,7
1500	60	38080	3885,7	44800	4571,4	64400	6571,4	59500	6071,4

TORQUE TABLE

ASME CLASS 300LB METAL SEAT

ASME CLASS 300LB
METAL SEAT

SIZE		10 Bar		20 Bar		25 Bar		35 Bar		40 Bar		50 Bar	
mm	inch	N,m	Kgf,m	N,m	Kgf,m	N,m	Kgf,m	N,m	Kgf,m	N,m	Kgf,m	N,m	Kgf,m
50	2	82,6	8,4	86,8	8,9	91,0	9,3	92,4	9,4	95,2	9,7	98,0	10,0
65	2 1/2	85,4	8,7	91,0	9,3	92,4	9,4	96,6	9,9	98,0	10,0	105,0	10,7
80	3	91,0	9,3	98,0	10,0	100,8	10,3	103,6	10,6	105,0	10,7	119,0	12,1
100	4	126,0	12,9	140,0	14,3	147,0	15,0	161,0	16,4	175,0	17,9	189,0	19,3
125	5	161,0	16,4	175,0	17,9	189,0	19,3	203,0	20,7	217,0	22,1	231,0	23,6
150	6	182,0	18,6	210,0	21,4	231,0	23,6	252,0	25,7	266,0	27,1	287,0	29,3
200	8	287,0	29,3	350,0	35,7	392,0	40,0	420,0	42,9	455,0	46,4	476,0	48,6
250	10	441,0	45,0	581,0	59,3	672,0	68,6	728,0	74,3	770,0	78,6	819,0	83,6
300	12	609,0	62,1	896,0	91,4	1260,0	128,6	1365,0	139,3	1526,0	155,7	1785,0	182,1
350	14	1106,0	112,9	1631,0	166,4	1890,0	192,9	2100,0	214,3	2415,0	246,4	2625,0	267,9
400	16	1470,0	150,0	2051,0	209,3	2625,0	267,9	3045,0	310,7	3465,0	353,6	3675,0	375,0
450	18	1890,0	192,9	2835,0	289,3	3570,0	364,3	4151,0	423,6	4725,0	482,1	5198,2	530,4
500	20	2499,0	255,0	3927,0	400,7	5250,0	535,7	5950,0	607,1	6783,0	692,1	7378,0	752,9
600	24	3808,0	388,6	5712,0	582,9	7140,0	728,6	8568,0	874,3	9639,0	983,6	10710,0	1092,9
700	28	5831,0	595,0	8925,0	910,7	10829,0	1105,0	13090,0	1335,7	14280,0	1457,1	16072,0	1640,0
750	30	6545,0	667,9	9758,0	995,7	12495,0	1275,0	15470,0	1578,6	17262,0	1761,4	18452,0	1882,9
800	32	7616,0	777,1	11305,0	1153,6	13685,0	1396,4	17262,0	1761,4	19040,0	1942,9	20832,0	2125,7
900	36	10710,0	1092,9	16660,0	1700,0	19040,0	1942,9	22372,0	2282,9	23800,0	2428,6	26502,0	2704,3
1000	40	14280,0	1457,1	21420,0	2185,7	24402,0	2490,0	29050,0	2964,3	31374,0	3201,4	35798,0	3652,9
1050	42	16660,0	1700,0	22610,0	2307,1	26726,0	2727,1	32536,0	3320,0	34860,0	3557,1	39508,0	4031,4
1200	48	22610,0	2307,1	31374,0	3201,4	34860,0	3557,1	42994,0	4387,1	46480,0	4742,9	51128,0	5217,1

TORQUE TABLE

ASME CLASS 600LB METAL SEAT

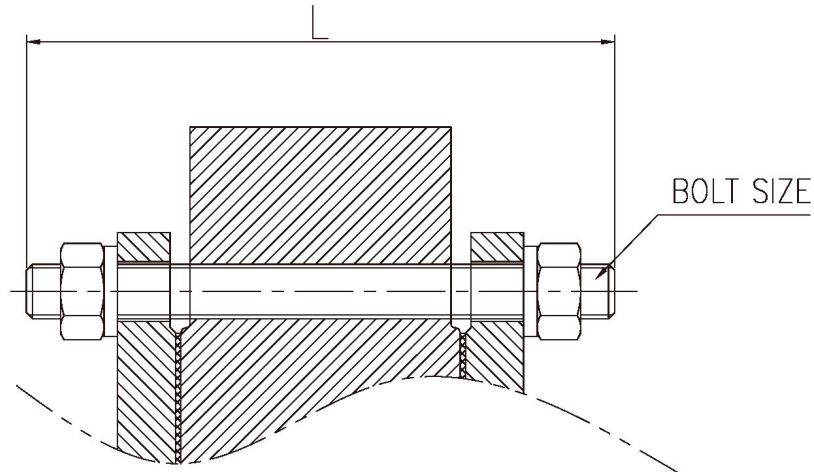
ASME CLASS 600LB
METAL SEAT

SIZE		10 Bar		35 Bar		55 Bar		70 Bar		80 Bar		100 Bar	
mm	inch	N,m	Kgf,m	N,m	Kgf,m	N,m	Kgf,m	N,m	Kgf,m	N,m	Kgf,m	N,m	Kgf,m
80	3	98,0	10,0	161,0	16,4	189,0	19,3	210,0	21,4	224,0	22,9	245,0	25,0
100	4	182,0	18,6	336,0	34,3	434,0	44,3	518,0	52,9	567,0	57,9	609,0	62,1
150	6	294,0	30,0	539,0	55,0	770,0	78,6	945,0	96,4	1155,0	117,9	1365,0	139,3
200	8	420,0	42,9	861,0	87,9	1365,0	139,3	1680,0	171,4	1890,0	192,9	1995,0	203,6
250	10	728,0	74,3	1470,0	150,0	2100,0	214,3	2520,0	257,1	2835,0	289,3	3045,0	310,7
300	12	1421,0	145,0	2310,0	235,7	3360,0	342,9	4148,2	423,3	4620,0	471,4	5145,0	525,0
350	14	1680,0	171,4	3150,0	321,4	4515,0	460,7	5670,0	578,6	6300,0	642,9	6825,0	696,4
400	16	2261,0	230,7	4200,0	428,6	5775,0	589,3	7350,0	750,0	8190,0	835,7	8505,0	867,9
450	18	2730,0	278,6	5040,0	514,3	7350,0	750,0	9240,0	942,9	10290,0	1050,0	11550,0	1178,6
500	20	4165,0	425,0	7497,0	765,0	10710,0	1092,9	14280,0	1457,1	16660,0	1700,0	17850,0	1821,4
600	24	6545,0	667,9	13090,0	1335,7	19040,0	1942,9	22624,0	2308,6	24990,0	2550,0	27384,0	2794,3

TORQUE TABLE

CONNECTION BOLT TABLE

ASME CLASS 150LB / 300LB ALL THREAD

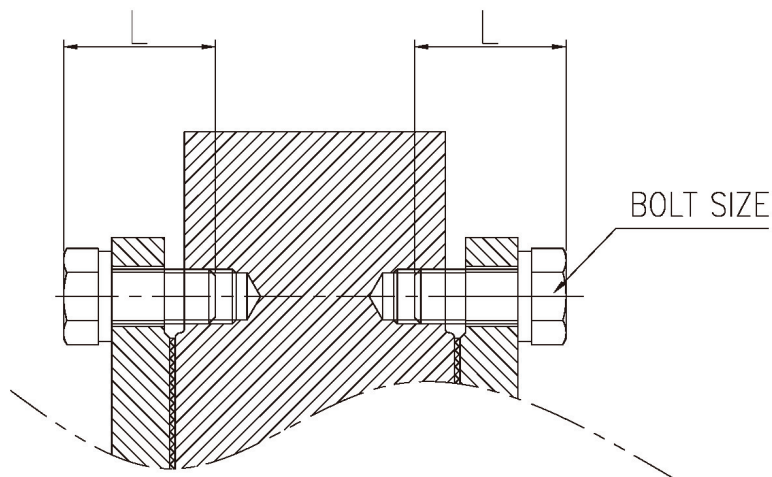


TRIPLE OFFSET BUTTERFLY VALVE CONNECTION BOLT TABLE
(CLASS 150,300) (ALL THREAD) – HEX BOLT

SIZE		CLASS 150			CLASS 300		
mm	inch	BOLT SIZE	Q'TY	LENGTH	BOLT SIZE	Q'TY	LENGTH
50	2	5/8" (11unc)	145	4	5/8" (11unc)	165	8
65	2 1/2	5/8" (11unc)	150	4	3/4" (10unc)	185	8
80	3	5/8" (11unc)	155	4	3/4" (10unc)	190	8
100	4	5/8" (11unc)	165	8	3/4" (10unc)	205	8
125	5	3/4" (10unc)	175	8	3/4" (10unc)	215	8
150	6	3/4" (10unc)	175	8	3/4" (10unc)	220	12
200	8	3/4" (10unc)	190	8	7/8" (9unc)	250	12
250	10	7/8" (9unc)	210	12	1" (8un)	265	16
300	12	7/8" (9unc)	220	12	1 1/8" (8un)	285	16
350	14	1" (8un)	250	12	1 1/8" (8un)	315	20
400	16	1" (8un)	260	16	1 1/4" (8un)	345	20
450	18	1 1/8" (8un)	285	16	1 1/4" (8un)	370	24
500	20	1 1/8" (8un)	305	20	1 1/4" (8un)	385	24
600	24	1 1/4" (8un)	345	20	1 1/2" (8un)	430	24
650	26	1 1/4" (8un)	400	24	1 5/8" (8un)	505	28
700	28	1 1/4" (8un)	405	28	1 5/8" (8un)	520	28
750	30	1 1/4" (8un)	435	28	1 3/4" (8un)	540	28
800	32	1 1/4" (8un)	465	28	1 7/8" (8un)	570	28
850	34	1 1/2" (8un)	480	32	1 7/8" (8un)	575	28
900	36	1 1/2" (8un)	500	32	2" (8un)	585	32
950	38	1 1/2" (8un)	500	32	1 1/2" (8un)	570	32
1000	40	1 1/2" (8un)	510	36	1 5/8" (8un)	645	32
1100	44	1 1/2" (8un)	555	40	1 3/4" (8un)	720	32
1150	46	1 1/2" (8un)	570	40	1 7/8" (8un)	735	28
1200	48	1 1/2" (8un)	580	44	1 7/8" (8un)	745	32
1250	50	1 3/4" (8un)	620	44	2" (8un)	805	32
1300	52	1 3/4" (8un)	630	44	2" (8un)	815	32
1350	54	1 3/4" (8un)	640	44	2 1/4" (8un)	845	28
1400	56	1 3/4" (8un)	640	48	2 1/4" (8un)	845	28

CONNECTION BOLT TABLE

ASME CLASS 150LB / 300LB TAP

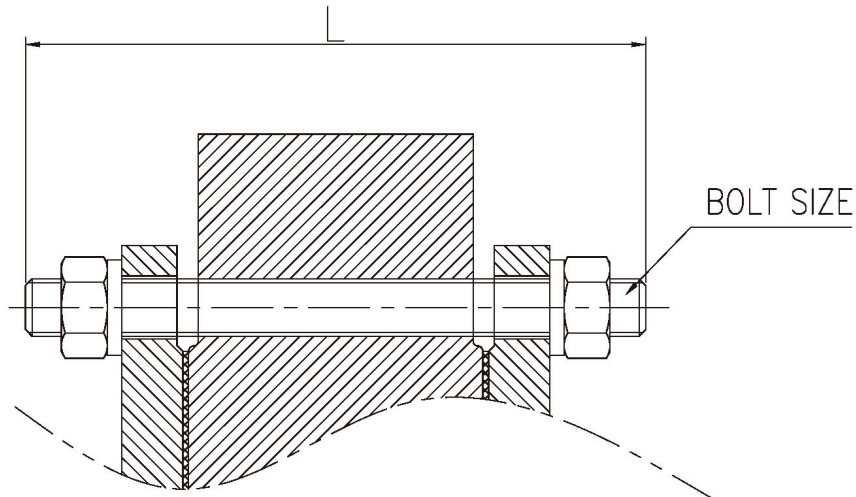


TRIPLE OFFSET BUTTERFLY VALVE CONNECTION BOLT TABLE
(CLASS 150,300) (TAP) – HEX BOLT

SIZE		CLASS 150				CLASS 300			
mm	inch	BOLT SIZE	LENGTH	Q'TY	TAP BOLT Q'TY	BOLT SIZE	LENGTH	Q'TY	TAP BOLT Q'TY
250	10	–	–	–	–	1" (8un)	85	16	8
300	12	–	–	–	–	1 1/8" (8un)	90	16	8
350	14	–	–	–	–	1 1/8" (8un)	95	20	8
400	16	1" (8un)	75	16	8	1 1/4" (8un)	100	20	8
450	18	1 1/8" (8un)	80	16	8	1 1/4" (8un)	105	24	8
500	20	1 1/8" (8un)	85	20	8	1 1/4" (8un)	105	24	8
600	24	1 1/4" (8un)	90	20	8	1 1/2" (8un)	120	24	8
650	26	1 1/4" (8un)	110	24	8	1 5/8" (8un)	135	28	8
700	28	1 1/4" (8un)	115	28	8	1 5/8" (8un)	140	28	8
750	30	1 1/4" (8un)	120	28	8	1 3/4" (8un)	150	28	8
800	32	1 1/2" (8un)	130	28	8	1 7/8" (8un)	160	28	8
850	34	1 1/2" (8un)	135	32	8	1 7/8" (8un)	165	28	8
900	36	1 1/2" (8un)	140	32	8	2" (8un)	170	32	8
950	38	1 1/2" (8un)	140	32	8	1 1/2" (8un)	160	32	8
1000	40	1 1/2" (8un)	140	36	8	1 5/8" (8un)	170	32	8
1050	42	1 1/2" (8un)	150	36	8	1 5/8" (8un)	175	32	8
1100	44	1 1/2" (8un)	155	40	8	1 3/4" (8un)	180	32	8
1150	46	1 1/2" (8un)	155	40	8	1 7/8" (8un)	190	28	8
1200	48	1 1/2" (8un)	160	44	8	1 7/8" (8un)	195	32	8
1250	50	1 3/4" (8un)	170	44	8	2" (8un)	205	32	8
1300	52	1 3/4" (8un)	175	44	8	2" (8un)	210	32	8
1350	54	1 3/4" (8un)	180	44	8	2 1/4" (8un)	225	28	8
1400	56	1 3/4" (8un)	180	48	8	2 1/4" (8un)	225	28	8
1450	58	1 3/4" (8un)	185	48	8	2 1/4" (8un)	230	32	8
1500	60	1 3/4" (8un)	190	52	8	2 1/4" (8un)	235	32	8

CONNECTION BOLT TABLE

ASME CLASS KS(JIS)10K / 16K / 20K ALL THREAD

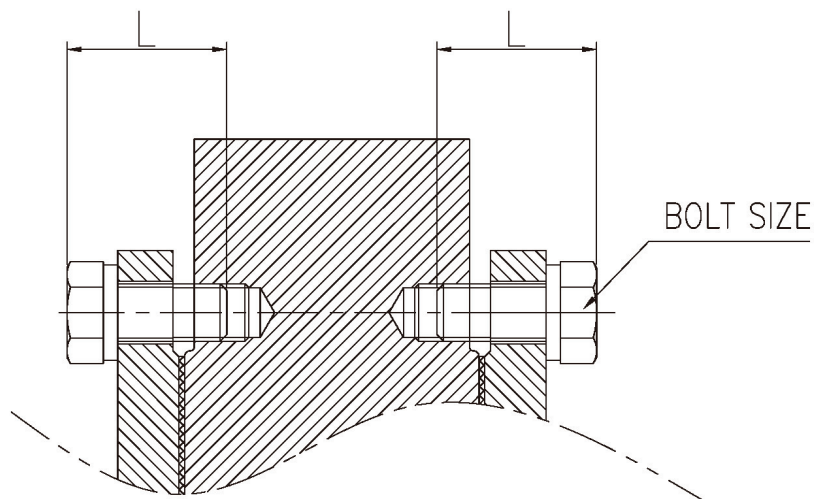


TRIPLE OFFSET BUTTERFLY VALVE CONNECTION BOLT TABLE
(KS,JIS 10K)(ALL THREAD) – STUD BOLT

SIZE		KS,JIS10K			KS,JIS16K			KS,JIS20K		
mm	inch	BOLT SIZE	Q'TY	LENGTH	BOLT SIZE	Q'TY	LENGTH	BOLT SIZE	Q'TY	LENGTH
50	2	M16	125	4	M16	125	8	M16	130	8
65	2 1/2	M16	135	4	M16	135	8	M16	140	8
80	3	M16	135	8	M20	150	8	M20	155	8
100	4	M16	140	8	M20	160	8	M20	165	8
125	5	M20	160	8	M20	160	8	M22	175	8
150	6	M20	160	8	M22	170	12	M22	180	12
200	8	M20	170	12	M22	180	12	M22	190	12
250	10	M22	185	12	M24	195	12	M24	210	12
300	12	M22	195	16	M24	210	16	M24	225	16
350	14	M22	210	16	M30X3P	240	16	M30x3P	250	16
400	16	M24	230	16	M30X3P	260	16	M30x3P	275	16
450	18	M24	245	20	M30X3P	275	20	M30x3P	290	20
500	20	M24	255	20	M30X3P	290	20	M30x3P	305	20
550	22	M30	300	20	M36X3P	330	20	M36x3P	350	20
600	24	M30	300	24	M36X3P	335	24	M36x3P	350	24
650	26	M30	315	24	M36X3P	350	24	M45x3P	390	24
700	28	M30	315	24	M39X3P	360	24	M45x3P	395	24
750	30	M30	345	24	M39X3P	390	24	M52x3P	440	24
800	32	M30	345	28	M45X3P	400	24	M52x3P	450	24
850	34	M30	360	28	M45X3P	420	24	M52x3P	470	28
900	36	M30	360	28	M45X3P	425	28	–	–	–
1000	40	M36	390	28	M52X3P	460	28	–	–	–
1100	44	M36	435	28	M52X3P	500	32	–	–	–
1200	48	M36	440	32	M52X3P	510	32	–	–	–

CONNECTION BOLT TABLE

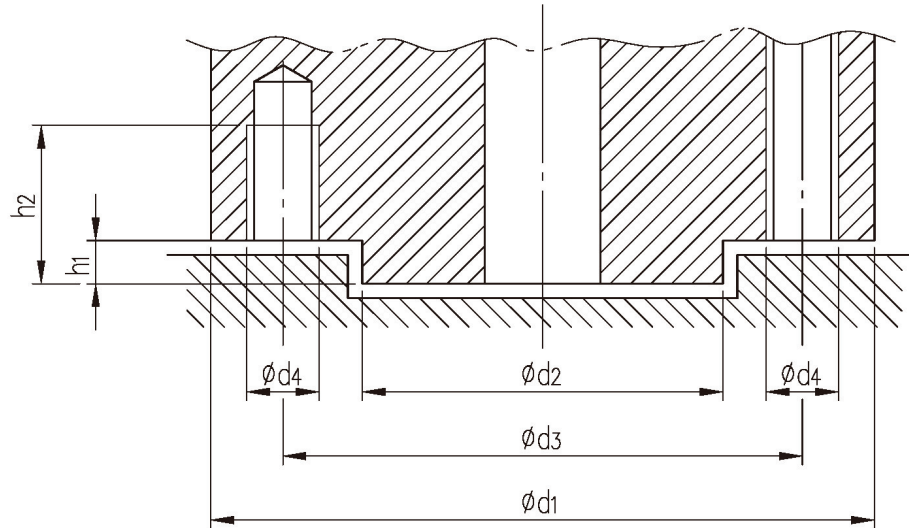
ASME CLASS KS(JIS)10K / 16K / 20K TAP



TRIPLE OFFSET BUTTERFLY VALVE CONNECTION BOLT TABLE
(KS,JIS 10K) (TAP) – HEX BOLT

SIZE		KS,JIS10K				KS,JIS16K				KS,JIS20K			
mm	inch	BOLT SIZE	Q'TY	LENGTH	TAP BOLT Q'TY	BOLT SIZE	Q'TY	LENGTH	TAP BOLT Q'TY	BOLT SIZE	Q'TY	LENGTH	TAP BOLT Q'TY
300	12	M22	55	16	8	M24	65	16	8	M24	70	16	8
350	14	M22	60	16	8	M30X3P	75	16	8	M30x3P	80	16	8
400	16	M24	65	16	8	M30X3P	80	16	8	M30x3P	85	16	8
450	18	M24	65	20	8	M30X3P	80	20	8	M30x3P	90	20	8
500	20	M24	65	20	8	M30X3P	85	20	8	M30x3P	90	20	8
550	22	M30	75	20	8	M36X3P	90	20	8	M36x3P	100	20	8
600	24	M30	75	24	8	M36X3P	95	24	8	M36x3P	100	24	8
650	26	M30	75	24	8	M36X3P	95	24	8	M45x3P	120	24	8
700	28	M30	75	24	8	M39X3P	100	24	8	M45x3P	120	24	8
750	30	M30	75	24	8	M39X3P	110	24	8	M52x3P	135	24	8
800	32	M30	75	28	8	M45X3P	110	24	8	M52x3P	140	24	8
850	34	M30	75	28	8	M45X3P	115	24	8	M52x3P	140	28	8
900	36	M30	80	28	8	M45X3P	115	28	8	–	–	–	–
1000	40	M36	90	28	8	M52X3P	130	28	8	–	–	–	–
1100	44	M36	90	28	8	M52X3P	130	32	8	–	–	–	–
1200	48	M36	90	32	8	M52X3P	135	32	8	–	–	–	–
1350	54	M42	105	36	8	M56X3P	145	32	8	–	–	–	–
1500	60	M42	105	40	8	M56X3P	150	36	8	–	–	–	–

ISO 5211 FLANGE DIMENSIONS



ISO 5211
FLANGE DIMENSIONS

(Unit : mm)

FLANGE TYPE	d1	d2	d3	d4	Number of Bolt	h1 max.	h2 min.
F03	46	25	36	M5	4	3	8
F04	54	30	42	M5	4	3	8
F05	65	35	50	M6	4	3	9
F07	90	55	70	M8	4	3	12
F10	125	70	102	M10	4	3	15
F12	150	85	125	M12	4	3	18
F14	175	100	140	M16	4	4	24
F16	210	130	165	M20	4	5	30
F25	300	200	254	M16	8	5	24
F30	350	230	298	M20	8	5	30
F35	415	260	356	M30	8	5	45
F40	475	300	406	M36	8	8	54
F48	560	370	483	M36	12	8	54
F60	686	470	603	M36	20	8	54

ORDERING CHART

ORDERING CHART

MTS	0	0	0	-	0	0	0	0	0
	1	2	3		4	5	6	7	8

1. BODY SIZE(mm)				2. RATING				3. END CONNECTION		4. BODY TYPE	
CODE	mm	CODE	mm								
1	50	13	500	1	KS(JIS)5K	13	DIN PN 40	F	FF FLANGED	CO	CONCENTRIC ONE-BODY
2	65	14	550	2	KS(JIS)10K	14	ANSI 125LB	R	RF FLANGED	CT	CONCENTRIC TWO-BODY
3	80	15	600	3	KS(JIS)16K	15	ANSI 150LB	W	WAFER(BOLTED)	HP	HIGH PERFORMANCE
4	100	16	650	4	KS(JIS)20K	16	ANSI 300LB	L	LUG	TR	TRIPLE OFFSET
5	125	17	700	5	KS(JIS)30K	17	ANSI 600LB	C	WELDING		
6	150	18	750	6	KS(JIS)40K	18	ANSI 900LB	J	RING TYPE JOINT		
7	200	19	800	7	KS(JIS)63K	19	AWWA CLASS B				
8	250	20	850	8	DIN PN 2,5	20	AWWA CLASS D				
9	300	21	900	9	DIN PN 6	99	MAKER STD'				
10	350	22	1000	10	DIN PN 10						
11	400	...	...	11	DIN PN 16						
12	450	99	SPECIAL	12	DIN PN 25						

5. BODY MATERIAL		6. DISC MATERIAL		7. SEAT MATERIAL		8. DRIVING TYPE	
1	A126 B(FC 200)	1	A126 B(FC 200)	E	EPDM	PD	PNEU' DA
2	A536 Gr.65-45-12(FCD 450)	2	A536 Gr.65-45-12(FCD 450)	N	NBR	PS	PNEU' SR
3	A216 WCB(SCPH2)	3	A216 WCB(SCPH2)	P	PTFE	PDH	PNEU' DA +H/W
4	A351 CF8(SCS 13A)	4	A351 CF8(SCS 13A)	R	RTFE	PSH	PNEU' SR+H/W
5	A351 CF8M(SCS 14A)	5	A351 CF8M(SCS 14A)	V	VITON	M1	MOTOR(BASIC+IP68)
6	A351 CF3(SCS 19A)	6	17-4PH(SUS 630)	C	SILICONE	M2	MOTOR(BASIC+방폭)
7	A351 CF3M(SCS 16A)	7	A217 CA15(SUS 410L)	B	BUNA-N	M3	MOTOR(INTEGRAL+IP68)
8	A167(STS310)	8	A351 CF8(SCS 13A)+STL'	I	INCONEL	M4	MOTOR(INTEGRAL+방폭)
9	A36(SS400)	9	A351 CF3(SCS 19A)+STL'	D	DUPLEX	M5	MOTOR(SPECIAL)
10	A573(SM490)	10	A351 CF3M(SCS 16A)+STL'	J	STS 304	H	HYDRAULIC
11	A572(SM400)	11	A351 CF8(SCS 13A)+HCr	K	STS 304L	PC	PNEU' CYLINDER
12	HASTELLOY	12	A351 CF8M(SCS 14A)+HCr	L	STS 316	W	WORM GEAR(BEVEL or SPUR)
13	ALLOY	13	A351 CF3(SCS 19A)+HCr	N	STS 316L	L	LEVER
14	DUPLEX	14	A351 CF3M(SCS 16A)+HCr	M	MONEL	B	BARE
15	STEN 1	15	HASTELLOY	Z	SPECIAL		
16	STEN 2	16	ALLOY				
17	K500	17	STEN 1				
18	R405	18	STEN 2				
99	SPECIAL	99	SPECIAL				

MEMO

MEMO

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MEMO

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Size and component specification in this
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