

Ace valve

Concentric Butterfly Valve In Various Application



ACE VALVE COMPANY LIMITED

[Http://www.ace-valve.co.kr](http://www.ace-valve.co.kr)

Technological Knowhow of

ACE VALVE



**A Top - ranking company in the 21st century by
challenging the potential**

ACE VALVE has provided the best quality products by using accumulated technological knowhow and the most advanced machinery.

Now we challenge the whole world market of butterfly valve.



Specification of "C" Series

The valve shall be capable of bi-directional flow with bubble tight shut-off at full rating pressure.

TYPE NUMBERING SYSTEM

- AV-CWR Concentric WAFER type Rubber lined Butterfly Valves
- AV-CSR Concentric SEMI-LUG type Rubber lined Butterfly Valves
- AV-CLR Concentric LUG type Rubber lined Butterfly Valves
- AV-CFR Concentric FLANGE type Rubber lined Butterfly Valves

STANDARD COMPLIANCE

ACE Concentric Butterfly valves conform to ISO 5752, KSV 7490, JIS F 7480, JIS B 2032, JIS B 2064, API 609, BS5155, in general.

PRODUCTION RANGE

- SIZE : 50A (2inch) ~ 2000A (80inch)
- RATING PRESSURE : Up to 16bar
- RATING TEMPERATURE : -20 °C ~ +200°C

APPLICABLE FLANGE

- KS/JIS 5K, 10K, 16K
- ANSI B 16.1 Class 125LB
- ANSI B 16.5 Class 150LB
- BS 4504 PN 6, PN10
- DIN 2501 PN 6, PN10
- ISO 2084 PN 6, PN10



AV-C Series Concentric Butterfly valves

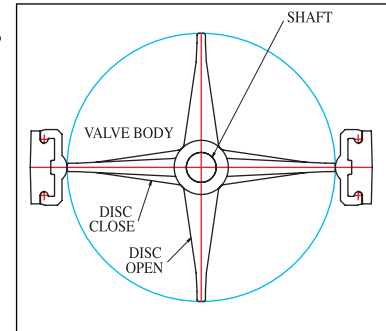
The Concentric Design

CENTER OF SHAFT' in the 'Center of Pipe' / 'Center of the Valve Seat'
 Applicable for BUTTERFLY VALVE WITH ELASTOMER LINING.





- Symmetric disc design ensures favorable flow characteristics and low pressure drop
- Concentric shaft ensures low operating torque
- Lining gives a good protection to valve body, and acts as flange gasket
 - Shaft penetrates the valve seat
 - Limited choice of seating materials(Elastomer, only)

Suitable for installation in 'Low Pressure System'

Not suitable where FIRE-SAFE or FIRE-PROOF requirement apply to the valve or valve installation method



Classification by Connection type

Appearance	Type	General Characteristics
	AV-C Series AV-CWR (WAFFER)	<ul style="list-style-type: none"> • General Applications <ul style="list-style-type: none"> - Shipbuilding, water works, heating and ventilation, power plants, oil refinery Chemical plants etc. • Valve to be installed with long bolts between the flanges at adjacent pipe without flange on the valve. • Easy handling and light weight. • Easy installation, less bolt quantity and low cost. • Inconvenient maintenance of adjacent pipe.
	AV-C Series AV-CSR (SEMI-LUG)	<ul style="list-style-type: none"> • General Applications <ul style="list-style-type: none"> - Shipbuilding, water works, heating and ventilation, power plants, oil refinery Chemical plants etc. • Similar as wafer type except a pair of the jack bolt hole in way of upper and lower sides for easy maintenance of adjacent pipe. • Easy handling and light weight. • Less quantity of bolt and easy installation. • Keep liquid remained during repairing adjacent pipe.
	AV-C Series AV-CLR (FULL-LUG)	<ul style="list-style-type: none"> • General Applications : general piping system pump outlets, tank drains, ship sides etc. • Ring shape bolt hole for bolting with flange. • Keep pressure inside during repairing adjacent one side pipe. • Different flange shape. • Possible damage on full face gasket. • Hard repairing of corroded bolt. • More man-hour for installation. • Heavy weight.
	AV-C Series AV-CFR (FLANGE)	<ul style="list-style-type: none"> • General Applications <ul style="list-style-type: none"> - Shipline valves, ballast valves, water works, power plants, etc all piping system. • Both ends with complete flange. • Suitable to general pipe flange. • Suitable for shipline valve in the ship. • Heavy weight. • Same installation as ordinary valve.

AV-C Series Concentric Butterfly valves

Schema of concentric type

The valve shall be a 90° turn clockwise to close, non-jamming, resilient seated valve for zero leakage service.

The valve shall be torque seated and designed in such a manner that the disc can be rotated the seat with out the actuator.

Also this valve enables the fluid perfect shut-off regardless of the flow direction.

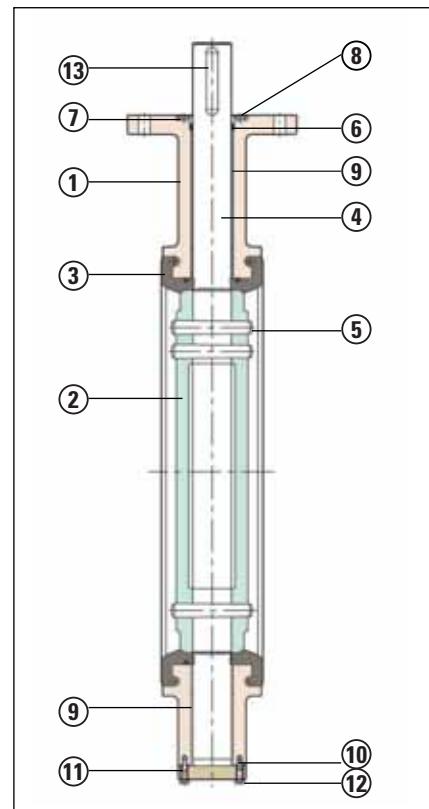
Operations

The following operation of the valve is possible depend on the valve location, the type of work and service of the valve to be provided.

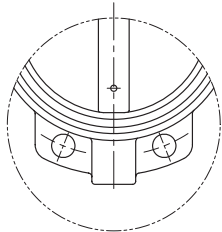
- Manual lever Operation
- Manual worm gear Operation
- Single or double acting pneumatic Operation
- Hydraulic actuator Operation
- Electric motor Operation



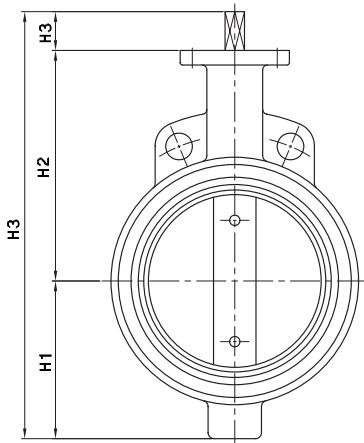
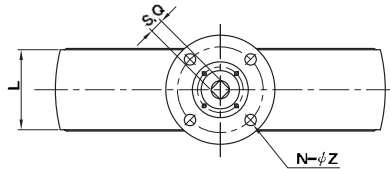
P.NO.	PART NAME	MATERIAL
1	BODY	CAST IRON / DUCTILE IRON STAINLESS STEEL / CARBON STEEL ALUMINUM BRONZE
2	DISC	STAINLESS STEEL / ALLOY STEEL ALUMINUM BRONZE
3	SEAT	NBR / EPDM / SILICON / VITON
4	STEM	STAINLESS STEEL(SS304, 316, 410, 420, 17-4PH)
5	DISC PIN	STAINLESS STEEL
6	O-RING	RUBBER SAME AS SEAT MATERIAL
7	PACKING GLAND	BRONZE
8	GLAND BOLT	STAINLESS STEEL
9	BEARING	PTFE + pb
10	O-RING	RUBBER SAME AS SEAT MATERIAL
11	BOTTOM COVER	CARBON STEEL / STAINLESS STEEL / AL-BRONZE / MILD STEEL
12	BOLT & WASHER	STEEL / STAINLESS STEEL
13	KEY	CARBON STEEL, if necessary



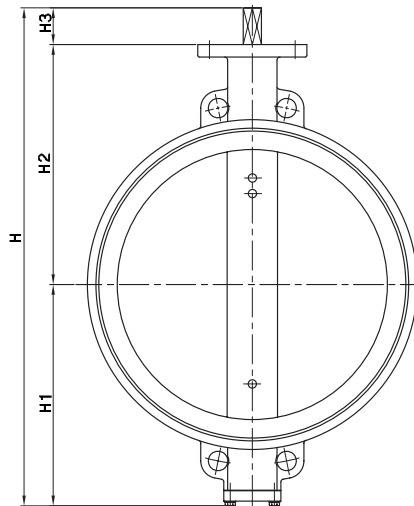
AV-CWR Wafer Concentric Dimensions



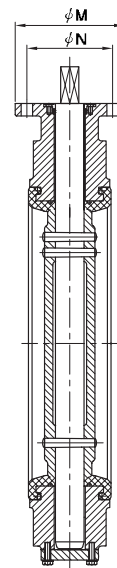
ND 250(10'') ~ 350(14'')



ND 200(8'') and BELOW



ND 400(16'') and OVER

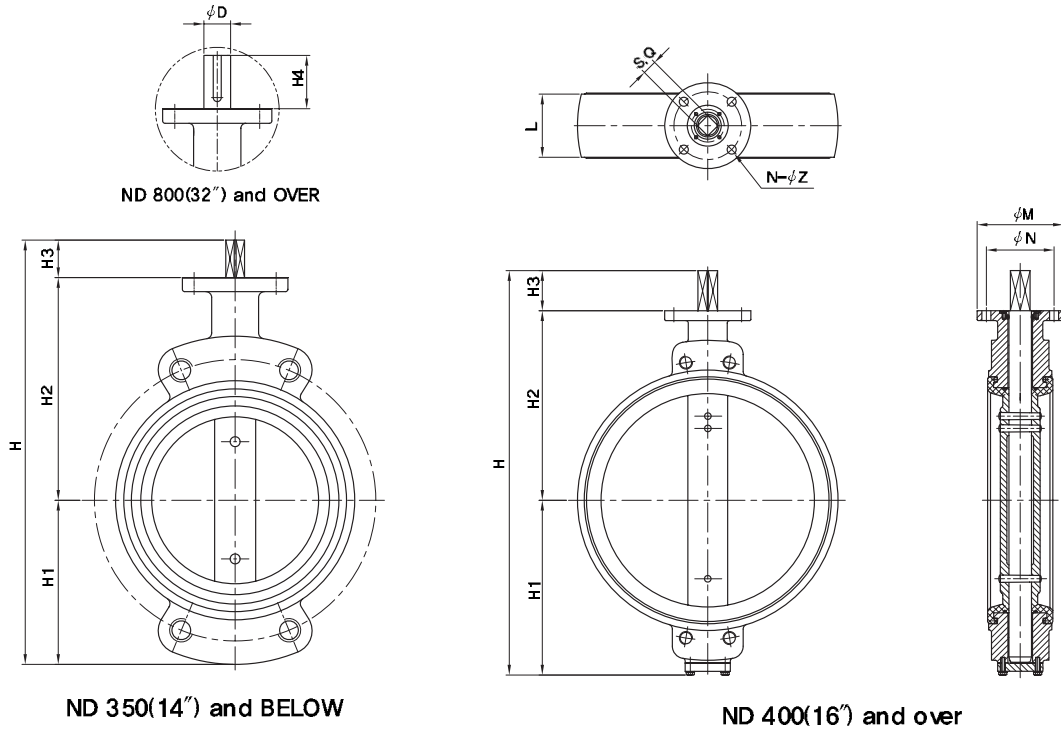


VALVE DIMENSIONS

unit : mm

SIZE		L	H	H1	H2	H3	STEM	TOP FLANGE			WEIGHT (APPROX.) (kg)	
inch	mm						SQ	TYPE	ØN	ØM		N-ØZ
2"	50	43	216	55	128	33	9	F07	70	90	4-9	3
2.5"	65	46	239	66	140	33	9	F07	70	90	4-9	4
3"	80	46	258	75	150	33	9	F07	70	90	4-9	5
4"	100	52	293	95	165	33	12	F07	70	90	4-9	5
5"	125	56	326	115	178	33	12	F07	70	90	4-9	7
6"	150	56	353	130	190	33	12	F07	70	90	4-9	8
8"	200	60	435	155	230	50	17	F10	102	125	4-12	13
10"	250	68	535	215	270	50	17	F10	102	125	4-12	20
12"	300	78	611	251	310	50	22	F10	102	125	4-12	31
14"	350	78	655	270	335	50	27	F10	102	125	4-12	43
16"	400	102	755	325	370	60	27	F14	140	175	4-18	70
18"	450	114	797	347	390	60	27	F14	140	175	4-18	86
20"	500	127	883	383	420	80	36	F16	165	210	4-22	128

AV-CSR Semi-Lug Concentric Dimensions

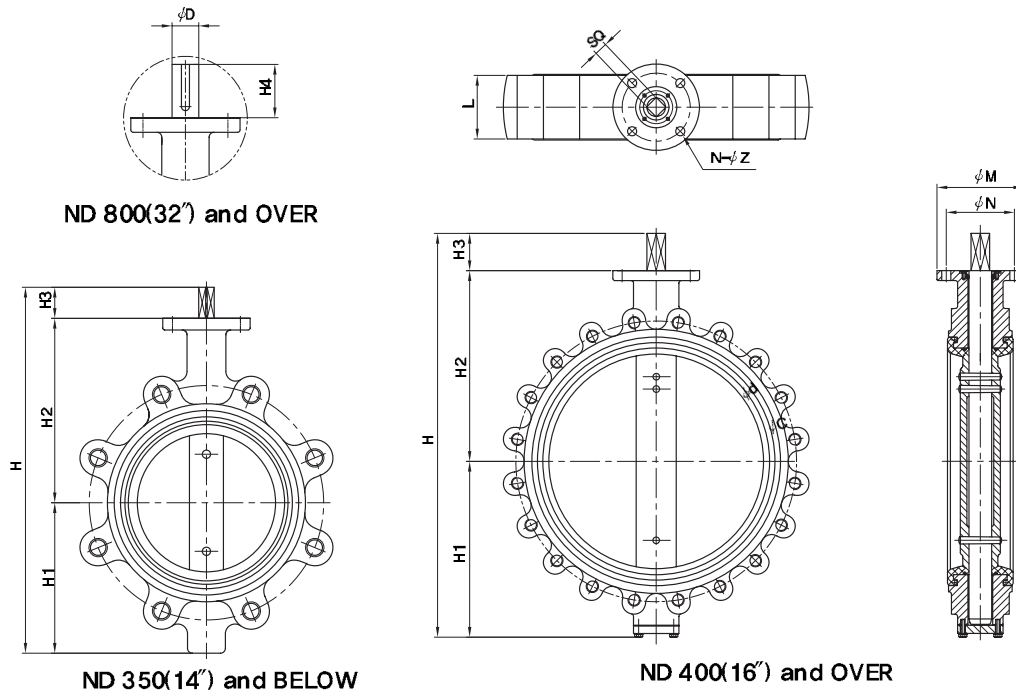


VALVE DIMENSIONS

unit : mm

SIZE		L	H	H1	H2	H4	STEM				TOP FLANGE				WEIGHT (APPROX.) (kg)
inch	mm						ØD	KEY SIZE	SQUARE		TYPE	ØN	ØM	N-ØZ	
									SQ	H3					
2"	50	43	216	55	128	-	-	-	9	33	F07	70	90	4-9	3
2.5"	65	46	239	66	140	-	-	-	9	33	F07	70	90	4-9	4
3"	80	46	258	75	150	-	-	-	9	33	F07	70	90	4-9	5
4"	100	52	293	95	165	-	-	-	12	33	F07	70	90	4-9	8
5"	125	56	326	115	178	-	-	-	12	33	F07	70	90	4-9	9
6"	150	56	353	130	190	-	-	-	12	33	F07	70	90	4-9	10
8"	200	60	435	155	230	-	-	-	17	50	F10	102	125	4-12	19
10"	250	68	535	215	270	-	-	-	17	50	F10	102	125	4-12	27
12"	300	78	611	251	310	-	-	-	22	50	F10	102	125	4-12	40
14"	350	78	655	270	335	-	-	-	27	50	F10	102	125	4-12	46
16"	400	102	755	325	370	-	-	-	27	60	F14	140	175	4-18	77
18"	450	114	797	347	390	-	-	-	27	60	F14	140	175	4-18	95
20"	500	127	883	383	420	-	-	-	36	80	F16	165	210	4-22	135
22"	550	154	967	425	462	-	-	-	36	80	F16	165	210	4-22	195
24"	600	154	1028	453	495	-	-	-	50	80	F16	165	210	4-22	240
26"	650	165	1095	490	525	-	-	-	50	80	F16	165	210	4-22	285
28"	700	165	1150	515	555	-	-	-	50	80	F16	165	210	4-22	305
30"	750	190	1230	550	590	-	-	-	50	90	F16	165	210	4-22	362
32"	800	190	1352	592	640	120	80	22 × 14	-	-	F25	254	300	8-18	442
34"	850	210	1382	612	650	120	80	22 × 14	-	-	F25	254	300	8-18	505
36"	900	203	1488	658	700	130	80	22 × 14	-	-	F25	254	300	8-18	620
40"	1000	216	1645	725	770	150	95	25 × 14	-	-	F30	298	350	8-23	735

AV-CLR Lug Concentric Dimensions

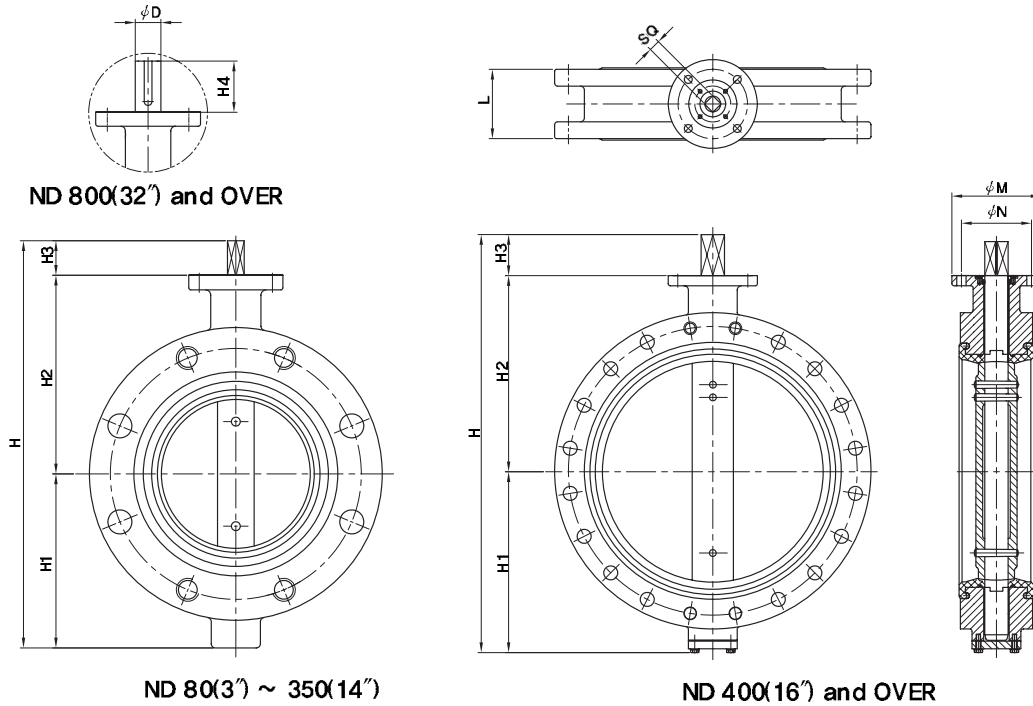


VALVE DIMENSIONS

unit : mm

SIZE		L	H	H1	H2	H4	STEM				TOP FLANGE			WEIGHT (APPROX.) (kg)	
inch	mm						ϕD	KEY SIZE	SQUARE		TYPE	ϕN	ϕM		N- ϕZ
									SQ	H3					
2"	50	43	216	55	128	-	-	-	9	33	F07	70	90	4-9	3
2.5"	65	46	239	66	140	-	-	-	9	33	F07	70	90	4-9	4
3"	80	46	258	75	150	-	-	-	9	33	F07	70	90	4-9	5
4"	100	52	293	95	165	-	-	-	12	33	F07	70	90	4-9	9
5"	125	56	326	115	178	-	-	-	12	33	F07	70	90	4-9	10
6"	150	56	353	130	190	-	-	-	12	33	F07	70	90	4-9	12
8"	200	60	435	155	230	-	-	-	17	50	F10	102	125	4-12	19
10"	250	68	535	215	270	-	-	-	17	50	F10	102	125	4-12	34
12"	300	78	611	251	310	-	-	-	22	50	F10	102	125	4-12	42
14"	350	78	655	270	335	-	-	-	27	50	F10	102	125	4-12	75
16"	400	102	755	325	370	-	-	-	27	60	F14	140	175	4-18	113
18"	450	114	797	347	390	-	-	-	27	60	F14	140	175	4-18	148
20"	500	127	883	383	420	-	-	-	36	80	F16	165	210	4-22	165
22"	550	154	967	425	462	-	-	-	36	80	F16	165	210	4-22	234
24"	600	154	1028	453	495	-	-	-	50	80	F16	165	210	4-22	270
26"	650	165	1095	490	525	-	-	-	50	80	F16	165	210	4-22	309
28"	700	165	1150	515	555	-	-	-	50	80	F16	165	210	4-22	350
30"	750	190	1230	550	590	-	-	-	50	90	F16	165	210	4-22	450
32"	800	190	1352	592	640	120	80	22x14	-	-	F25	254	300	8-18	485
34"	850	210	1382	612	650	120	80	22x14	-	-	F25	254	300	8-18	540
36"	900	203	1488	658	700	130	80	22x14	-	-	F25	254	300	8-18	635
40"	1000	216	1645	725	770	150	95	25x14	-	-	F30	298	350	8-23	750

AV-CFR Flange Concentric Dimensions



VALVE DIMENSIONS

unit : mm

SIZE		L	H	H1	H2	H4	STEM				TOP FLANGE				WEIGHT (APPROX.) (kg)
inch	mm						ØD	KEY SIZE	SQUARE		TYPE	ØN	ØM	N-Ø	
									SQ	H3					
2"	50	40	249	88	128	-	-	-	9	33	F07	70	90	4-9	6
2.5"	65	40	271	98	140	-	-	-	9	33	F07	70	90	4-9	7
3"	80	60	288	105	150	-	-	-	9	33	F07	70	90	4-9	9
4"	100	60	318	120	165	-	-	-	12	33	F07	70	90	4-9	12
5"	125	100	351	140	178	-	-	-	12	33	F07	70	90	4-9	17
6"	150	100	388	165	190	-	-	-	12	33	F07	70	90	4-9	22
8"	200	100	470	190	230	-	-	-	17	50	F10	102	125	4-12	34
10"	250	110	535	215	270	-	-	-	17	50	F10	102	125	4-12	50
12"	300	110	611	251	310	-	-	-	22	50	F10	102	125	4-12	73
14"	350	120	655	270	335	-	-	-	27	50	F10	102	125	4-12	99
16"	400	130	755	325	370	-	-	-	27	60	F14	140	175	4-18	113
18"	450	150	797	347	390	-	-	-	27	60	F14	140	175	4-18	148
20"	500	160	883	383	420	-	-	-	36	80	F16	165	210	4-22	165
22"	550	170	967	425	462	-	-	-	36	80	F16	165	210	4-22	234
24"	600	170	1028	453	495	-	-	-	50	80	F16	165	210	4-22	270
26"	650	170	1095	490	525	-	-	-	50	80	F16	165	210	4-22	309
28"	700	180	1150	515	555	-	-	-	50	80	F16	165	210	4-22	350
30"	750	190	1230	550	590	-	-	-	50	90	F16	165	210	4-22	395
32"	800	200	1352	592	640	120	80	22 × 14	-	-	F25	254	300	8-18	485
34"	850	210	1382	612	650	120	80	22 × 14	-	-	F25	254	300	8-18	540
36"	900	230	1488	658	700	130	80	22 × 14	-	-	F25	254	300	8-18	660
40"	1000	250	1645	725	770	150	95	25 × 14	-	-	F30	298	350	8-23	780
44"	1100	280	1740	760	830	150	95	25 × 14	-	-	F30	298	350	8-23	890
48"	1200	300	1880	840	890	150	95	25 × 14	-	-	F30	298	350	8-23	950
52"	1300	300	2048	938	950	160	115	32 × 18	-	-	F30	298	350	8-23	1050
56"	1400	330	2129	949	1000	180	130	32 × 18	-	-	F35	356	415	8-33	1550
60"	1500	330	2259	1024	1055	180	140	36 × 20	-	-	F35	356	415	8-33	1410
64"	1600	360	2450	1120	1150	180	140	36 × 20	-	-	F35	356	415	8-33	1580
72"	1800	360	2701	1221	1270	210	160	40 × 22	-	-	F35	356	415	8-33	2110

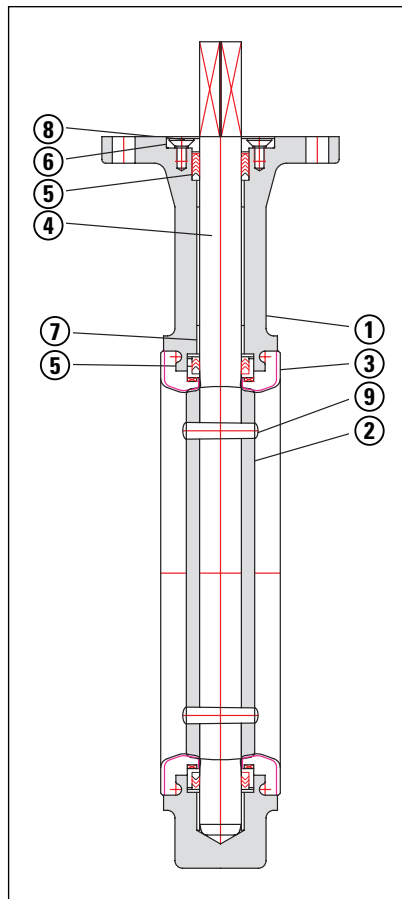
Butterfly Valve with Teflon Lining

Range of Applications

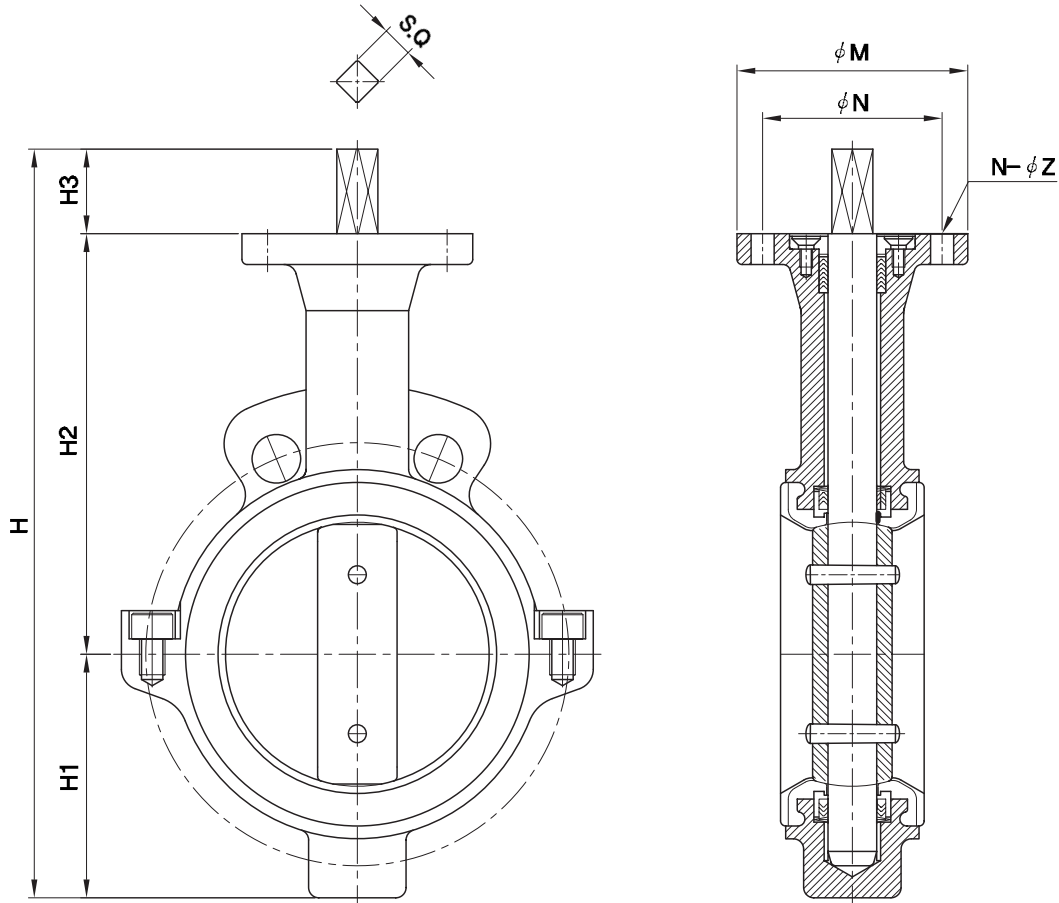
Butterfly valves provide a bubble tight seal. They are used to shut-off, throttle and regulate highly corrosive gases, liquids, slurries and powders. Butterfly valves are designed to handle a variety of applications to the semi conductor, chemical, petrochemical, pulp and paper, mining, food and beverage, sugar refining, sewage, air pollution control, oil and gas, and chemical carrier, shipbuilding industries etc.

VALVE TYPE	AV-TLW(WAFER)	AV-TLL(LUG)	AV-TLF(FLANGE)
Valve Nominal Sizes	50A~500A(2"~20")	50A~600A(2"~24")	50A~600A(2"~24")
Applicable Flange	JIS / KS 5K, 10K, ANSI B 16.5 CLASS 150LB		
Working temperature range	-20 ~ +250 ℃		
Allowable temperature in continuous use	-10 ~ +230 ℃		
Face to Face	KS V 7490, JIS F 7480, ISO 5752(Table 6)		
Actuators	LEVER, WORM GEAR, PNEUMATIC CYLINDER ELECTRIC MOTOR, HYDRAULIC ACTUATOR		

P.NO.	PART NAME	MATERIAL
1	BODY	Ductile iron Stainless Steel Carbon Steel
2	DISC	Stainless Steel
3	SEAT	PTFE
4	STEM	Stainless Steel
5	PACKING	PTFE
6	GLAND	Stainless Steel
7	BUSH	Stainless Steel
8	GLAND BOLT	Stainless Steel
9	DISC PIN	Stainless Steel



AV-TLW Teflon lined Butterfly Valve Dimensions



VALVE DIMENSIONS

unit : mm

SIZE		L	H	H1	H2	H3	STEM	TOP FLANGE				WEIGHT (APPROX.) (kg)
inch	mm						SQ	TYPE	ØN	ØM	N-ØZ	
2"	50	43	216	55	128	33	9	F07	70	90	4-9	3
2.5"	65	46	239	66	140	33	9	F07	70	90	4-9	4
3"	80	46	258	75	150	33	9	F07	70	90	4-9	4
4"	100	52	293	95	165	33	12	F07	70	90	4-9	5
5"	125	56	326	115	178	33	12	F07	70	90	4-9	6
6"	150	56	353	130	190	33	12	F07	70	90	4-9	8
8"	200	60	435	155	230	50	17	F10	102	125	4-12	12
10"	250	68	535	215	270	50	17	F10	102	125	4-12	19
12"	300	78	611	251	310	50	22	F10	102	125	4-12	30
14"	350	78	655	270	335	50	27	F10	102	125	4-12	43
16"	400	102	755	325	370	60	27	F14	140	175	4-18	70
18"	450	114	797	347	390	60	27	F14	140	175	4-18	86
20"	500	127	883	383	420	80	36	F16	165	210	4-22	128

Basic Formulas for obtaining Cv-Value

Rated flow coefficient (Cv) is a number which represents a valve's ability to pass flow.

The bigger Cv, the more flow can pass the valve with a given pressure drop. Rate Cv means the volume of water in united states gallons per minute that will pass through a given valve opening with a pressure drop of 1 pound square inch.(Water at temp=60DEG.F) A Cv of 1900 means a valve will pass 1900gpm of 60° F water with a dp of 1PSI.

Formula 1

FLOW RATE LBS/HR(Stem or Water)

$$dp = \left(\frac{F \sqrt{V}}{63.5 C_v} \right)^2 \quad \text{or} \quad C_v = \frac{F \sqrt{V}}{63.5 \sqrt{dp}}$$

Where :

dp = pressure drop in PSI

F = flow rate in lbs./hr.

\sqrt{V} = square root of specific volume in *ft. ³/lb.*
(downstream of valve)

Formula 2

FLOW RATE GPM(Water or Other Liquids)

$$dp = \left(\frac{Q}{C_v} \right)^2 \quad \text{or} \quad C_v = \frac{Q \sqrt{S_g}}{\sqrt{dp}}$$

Where :

dp = pressure drop in PSI

Sg = specific gravity

Q_v = Flow rate in GPM

The relation between Cv and Kv, expressed in the above mentioned unit of measure are as follows

$$C_v = 1.16 k_v$$

Flow coefficient for ACE Butterfly Valves

VALVE SIZE		DISC OPENING							
		20°	30°	40°	50°	60°	70°	80°	90°
inch	mm	Cv	Cv	Cv	Cv	Cv	Cv	Cv	Cv
2"	50	11.6	17.5	27.3	44.6	72	116	179	214
2.5"	65	19.6	29.6	46	75	122	197	302	362
3"	80	29.7	44.8	70	114	184	298	458	548
4"	100	45	70	109	178	289	466	715	856
5"	125	73	109	171	278	449	728	1118	1338
6"	150	104	158	246	401	650	1048	1610	1927
8"	200	186	280	437	713	1155	1863	2862	3426
10'	250	290	438	682	1114	1805	2911	4472	5353
12'	300	418	630	983	1604	2599	4192	6439	7708
14"	350	569	858	1338	2183	3523	5705	8764	10491
16"	400	743	1121	1747	2852	4620	7452	11447	13703
18'	450	940	1418	2211	3609	5847	9431	14488	17343
20'	500	1161	1751	2730	4456	7219	11644	17886	21411
22'	550	1405	2119	3303	5391	8701	14089	21642	25907
24"	600	1672	2522	3931	6416	10395	16767	25756	30832
26"	650	1962	2960	4614	7530	12152	19678	30227	36184
28'	700	2275	3432	5351	8733	14094	22821	35057	41965
30'	750	2612	3940	6142	10025	16242	26198	40244	48175
32'	800	2972	4483	6989	11406	18408	29807	45788	54812
34"	850	3355	5061	7890	12876	20781	33650	51691	61878
36"	900	3761	5674	8845	14436	23389	37725	57951	69371
38'	950	4191	6322	9588	16084	25958	42033	64569	77293
40'	1000	4643	7005	10920	17822	28763	46574	71544	85644
42'	1050	5119	7723	12176	19649	31711	51348	78877	94422
44"	1100	5618	8476	13213	21566	34803	56355	86668	103629
46"	1150	6141	9264	14441	23570	38039	61594	94617	113264
48'	1200	6683	10087	15725	25664	41419	67067	103024	123327

Torques Required to Operate Valve

- ▶The torques listed are applicable to water, sea water, lubricating type of hydro carbons and most media at temperature 0~80°C(32~180 ° F).
- ▶The operating speed of the actuator must be considered in order to avoid water hammer when the valve is closed in junction with Liquid.

Actuator torques can be calculated with the following formulas.

$$T_a = T_b + T_s + T_h = 1.2T_b \pm T_d$$

$$T_s = C_s D^2$$

$$T_b = 4.17 D^2 d f P$$

$$T_d = C_t D^3 P$$

$$T_h = 3.06 D^4$$

$$V = C_f \sqrt{P} = Q / 0.785 D^2$$

- T_a : The required actuator torque (lb-ft)
- T_s : Seat or unseating torque (lb-ft)
- T_d : Dynamic torque (lb-ft)
- Q : Flow (cubic for per second)
- V : Velocity (feet per second)
- D : Diameter of valve (feet)
- d : Diameter of shaft (inch)
- P : Pressure drop across valve (psi)
- C_s : Coefficient of seating or unseating torque
- C_t : Coefficient of dynamic torque
- C_f : Coefficient of flow
- f : Bearing friction coefficient

TORQUE TABLE

unit : kg-m/Nm

SIZE		CONCENTRIC TYPE									
mm	inch	3bar		5bar		10bar		13bar		16bar	
		kg-m	Nm	kg-m	Nm	kg-m	Nm	kg-m	Nm	kg-m	Nm
50A	2	0.64	6.27	0.80	7.84	1.00	9.80	1.20	11.76	1.40	13.72
65A	2 1/2	0.80	7.84	1.00	9.80	1.40	13.72	1.68	16.46	1.95	19.11
80A	3	1.04	10.19	1.30	12.74	1.80	17.64	2.16	21.17	2.45	24.01
100A	4	1.20	11.76	1.50	14.70	2.00	19.60	2.40	23.52	2.55	24.99
125A	5	1.84	18.03	2.30	22.54	3.00	29.40	3.60	35.28	4.00	39.20
150A	6	2.24	21.95	2.80	27.44	3.80	37.24	4.56	44.69	4.95	48.51
200A	8	5.70	55.86	7.13	69.83	16.35	160.23	19.62	192.28	25.40	248.92
250A	10	11.20	109.76	14.80	145.04	25.70	251.86	30.84	302.23	38.50	377.30
300A	12	19.60	192.08	24.50	240.10	35.00	343.00	42.00	411.60	48.50	475.30
350A	14	32.80	321.44	41.00	401.80	58.00	568.40	69.60	682.08	72.50	710.50
400A	16	40.80	399.84	51.00	499.80	72.00	705.60	86.40	846.72	85.00	833.00
450A	18	52.60	515.48	63.70	624.26	98.50	965.30	118.20	1158.36	151.00	1479.80
500A	20	67.60	662.48	84.50	828.10	138.00	1352.40	165.60	1622.88	185.00	1813.00
550A	22	75.68	741.66	94.60	927.08	155.00	1519.00	186.00	1822.80	215.00	2107.00
600A	24	108.00	1058.40	135.00	1323.00	199.00	1950.20	238.80	2340.24	275.00	2695.00
650A	26	143.20	1403.36	179.00	1754.20	255.00	2499.00	306.00	2998.80	330.00	3234.00
700A	28	172.00	1685.60	215.00	2107.00	311.00	3047.80	373.20	3657.36	415.00	4067.00
750A	30	208.00	2038.40	260.00	2548.00	378.00	3704.40	453.60	4445.28	495.00	4851.00
800A	32	252.00	2469.60	315.00	3087.00	445.00	4361.00	534.00	5233.20	585.00	5733.00
850A	34	284.00	2783.20	355.00	3479.00	515.00	5047.00	618.00	6056.40	680.00	6664.00
900A	36	348.00	3410.40	435.00	4263.00	640.90	6280.82	769.08	7536.98	840.00	8232.00
1000A	40	528.00	5174.40	660.00	6468.00	970.00	9506.00	1164.00	11407.20	1275.00	12495.00
1100A	44	640.00	6272.00	800.00	7840.00	1150.00	11270.00	1380.00	13524.00	1550.00	15190.00
1200A	48	968.00	9486.40	1210.00	11858.00	1760.00	17248.00	2112.00	20697.60	2210.00	21658.00
1350A	54	1135.00	11123.00	1400.00	13720.00	2024.00	19835.20				
1600A	64	1660.00	16268.00	1880.00	18424.00	2640.00	25872.00				
1800A	72	1970.00	19306.00	2260.00	22148.00	2780.00	27244.00				

Elastomer General Chart

The following chart should be used as a general guide.

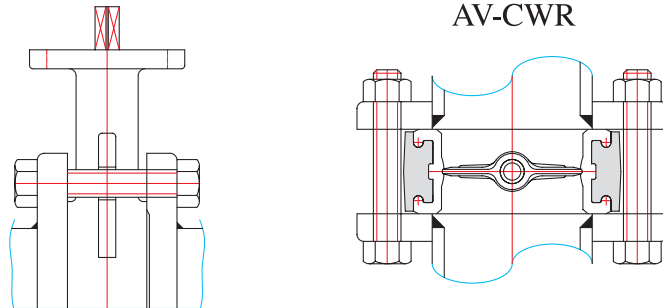
Application suggested derives from recommendation given by elastomer manufacturer.

The resistance can be affected by type of fluid, concentration, temperature, pressure, flow rate or evaporation of the medium.

The final choice is to be taken by the customer, based on characteristics and specific application.

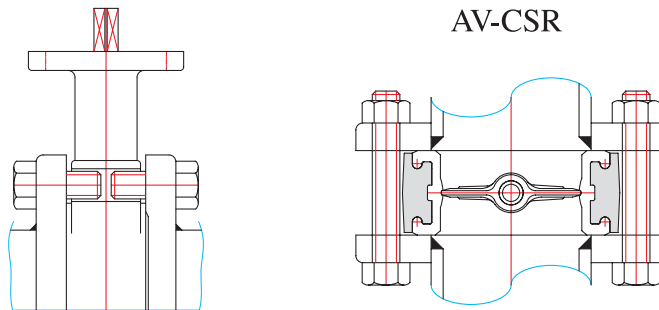
MATERIAL	GENERAL APPLICATION	SERVICE TEMPERATURE	NOT RECOMMENDED FOR
EPDM	Fresh Water Sea Water Brine Esters Alkalis Ozone Alcohols Brake Fluid Treated Water With Caustic Soda	-15 °C to + 120 °C (for intermittent operation) 0 °C ~ 100 °C (Allowable temperature in continuous use)	Hydrocarbons Oils Fats Greases
NBR	Fresh Water Sea Water Treated Water With Caustic Soda Hydrocabons Natural Gas Oil and Fat Air Gasoline	-10 °C to + 80 °C (Allowable temperature in continuous use) 0 °C ~ 70 °C (L-NBR -50 °C to 70 °C)	Solvents Benzene Xylol
SBR	Acids and Alkalis	-20 °C to + 80 °C	
VITON	Acids, Oils Hydrocarbon	-10 °C to + 230 °C	Steam, Ester Freon22, Alkalis Solvents, Ketones
SILICONE	Food Beverage	-20 °C to + 140 °C	Steam Solvents Hydrocarbons
TEFLON	Solvents Corrosive Products Ketones	-50 °C to +230 °C (PTFE -196 °C to + 230 °C)	Fluid Containing Powders Alkaline Gaseous Fluorine
NEOPRENE	Acid, Ozone, Oils Fats Greases Solvents	-18 °C to + 90 °C	Ketones, Thinners Concentrated Acids

Bolting Dimensions (Wafer & Semi-Lug Type)



WAFER TYPE

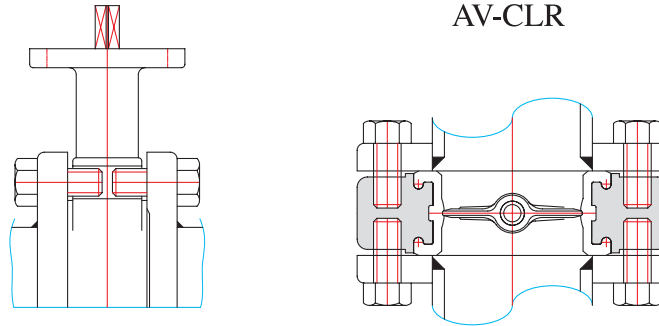
SIZE	FACE TO FACE	NUT(T) 5K	NUT(T) 10K	FLANGE(T) 5K		FLANGE(T) 10K		JIS 5K		JIS 10K	
				CAST IRON	CAST STEEL	CAST IRON	CAST STEEL	Q'TY	BOLT SIZE	Q'TY	BOLT SIZE
DN 50	43	10	13	16	14	20	16	4	M12	4	M16
65	46	10	13	18	14	22	18	4	M12	4	M16
80	46	13	13	18	14	22	18	4	M16	8	M16
100	52	13	13	20	16	24	18	8	M16	8	M16
125	56	13	16	20	16	24	20	8	M16	8	M20
150	56	13	16	22	18	26	22	8	M16	8	M20
200	60	16	16	24	20	26	22	8	M20	12	M20
250	68	16	18	26	22	30	24	12	M20	12	M22
300	78	16	18	28	22	32	24	12	M20	16	M22
350	78	18	18	30	24	34	26	12	M22	16	M22
400	102	18	19	30	24	36	28	16	M22	16	M24
450	114	18	19	30	24	38	30	16	M22	20	M24
500	127	18	19	32	24	40	30	20	M22	20	M24



SEMI-LUG TYPE

SIZE		FACE TO FACE	JIS 5K		JIS 10K		ANSI 150LB	
inch	mm		Q'TY	BOLT	Q'TY	BOLT	Q'TY	BOLT
2"	50	43	4	M12	4	16	4	5/8"
2 1/2"	65	46	4	M12	4	16	4	5/8"
3"	80	46	4	M16	8	16	4	5/8"
4"	100	52	8	M16	8	16	8	5/8"
5"	125	56	8	M16	8	20	8	3/4"
6"	150	56	8	M16	8	20	8	3/4"
8"	200	60	8	M20	12	20	8	3/4"
10"	250	68	12	M20	12	22	12	7/8"
12"	300	78	12	M20	16	22	12	7/8"
14"	350	78	12	M22	16	22	12	1"
16"	400	102	16	M22	16	24	16	1"
18"	450	114	16	M22	20	24	16	1 1/8"
20"	500	127	20	M22	20	24	20	1 1/8"
22"	550	154	20	M24	20	30	20	1 1/4"
24"	600	154	20	M24	24	30	20	1 1/4"
26"	650	165	24	M24	24	30	24	1 1/4"
28"	700	165	24	M24	24	30	28	1 1/4"
30"	750	190	24	M30	24	30	28	1 1/4"
32"	800	190	24	M30	28	30	28	1 1/2"
34"	850	210	24	M30	28	30	32	1 1/2"
36"	900	203	24	M30	28	30	32	1 1/2"
40"	1000	216	28	M30	28	36	36	1 1/2"

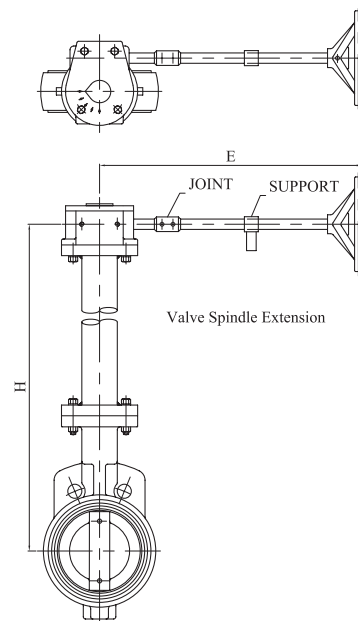
Bolting Dimensions (Lug Type)



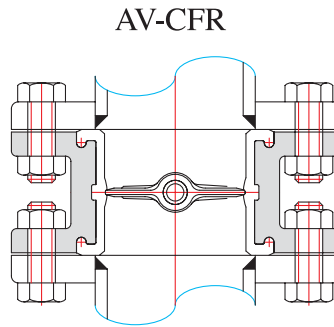
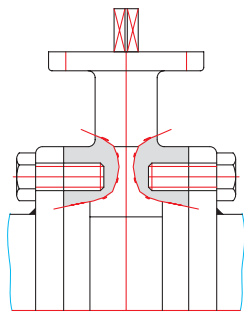
JIS 5K								JIS 10K							
SIZE	Face to Face	Connect Flange "t"				SIZE		SIZE	Face to Face	Connect Flange "t"				SIZE	
		5K		10K		JIS 5K				5K		10K		Bolt Size	
		CAST IRON	CAST STEEL	CAST IRON	CAST STEEL	Q'TY	SIZE			CAST IRON	CAST STEEL	CAST IRON	CAST STEEL	Q'TY	SIZE
DN 50	43	16	14	20	16	4	M12	DN 50	43	16	14	20	16	4	M16
65	46	18	14	22	18	4	M12	65	46	18	14	22	18	4	M16
80	46	18	14	22	18	4	M16	80	46	18	14	22	18	8	M16
100	52	20	16	24	18	8	M16	100	52	20	16	24	18	8	M16
125	56	20	16	24	20	8	M16	125	56	20	16	24	20	8	M20
150	56	22	18	26	22	8	M16	150	56	22	18	26	22	8	M20
200	60	24	20	26	22	8	M20	200	60	24	20	26	22	12	M20
250	68	26	22	30	24	12	M20	250	68	26	22	30	24	12	M22
300	78	28	22	32	24	12	M20	300	78	28	22	32	24	16	M22
350	78	30	24	34	26	12	M22	350	78	30	24	34	26	16	M22
400	102	30	24	36	28	16	M22	400	102	30	24	36	28	16	M24
450	114	30	24	38	30	16	M22	450	114	30	24	38	30	20	M24
500	127	32	24	40	30	20	M22	500	127	32	24	40	30	20	M24
550	154	32	26	42	32	20	M24	550	154	32	26	42	32	20	M30
600	154	32	26	44	32	20	M24	600	154	32	26	44	32	24	M30
650	165	34	26	46	34	24	M24	650	165	34	26	46	34	24	M30
700	165	34	26	48	34	24	M24	700	165	34	26	48	34	24	M30
750	190	36	28	50	36	24	M30	750	190	36	28	50	36	24	M30
800	190	36	28	52	36	24	M30	800	190	36	28	52	36	28	M30
900	203	38	30	54	38	24	M30	900	203	38	30	54	38	28	M30
1000	216	40	32	58	40	28	M30	1000	216	40	32	58	40	28	M36

OPERATOR POSITION

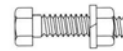
GEAR TYPE		
	G1	G3
LEVER TYPE		
	T1	T3
LEVER TYPE		
	L1	L3



Bolting Dimensions (Flanged Type)



"A" Type bolt
Machine bolt



"B" Type bolt
Machine bolt+Nut

JIS 5K-Casting body

VALVE SIZE		Face to Face length	Valve flange thickness		Bolt size	Holes & Taps Quantity
inch	mm		FC	SC		
2"	50	40	-	-	M12	4
2.5"	65	40	-	-	M12	4
3"	80	60	22	18	M16	4
4"	100	60	24	18	M16	8
5"	125	100	24	20	M16	8
6"	150	100	26	22	M16	8
8"	200	100	26	22	M20	8
10"	250	110	30	24	M20	12
12"	300	110	32	24	M20	12
14"	350	120	34	26	M22	12
16"	400	130	36	28	M22	16
18"	450	150	38	30	M22	16
20"	500	160	40	30	M22	20
22"	550	170	42	32	M24	20
24"	600	170	44	32	M24	20
26"	650	170	46	34	M24	24
28"	700	180	48	34	M24	24
30"	750	190	50	36	M30	24
32"	800	200	52	36	M30	24
34"	850	210	52	36	M30	24
36"	900	230	54	38	M30	24
40"	1000	250	58	40	M30	28

JIS 10K-Casting body

VALVE SIZE		Face to Face length	Valve flange thickness		Bolt size	Holes & Taps Quantity
inch	mm		FC	SC		
2"	50	40	-	-	M16	4
2.5"	65	40	-	-	M16	4
3"	80	60	22	18	M16	8
4"	100	60	24	18	M16	8
5"	125	100	24	20	M20	8
6"	150	100	26	22	M20	8
8"	200	100	26	22	M20	12
10"	250	110	30	24	M22	12
12"	300	110	32	24	M22	16
14"	350	120	34	26	M22	16
16"	400	130	36	28	M24	16
18"	450	150	38	30	M24	20
20"	500	160	40	30	M24	20
22"	550	170	42	32	M30	20
24"	600	170	44	32	M30	24
26"	650	170	46	34	M30	24
28"	700	180	48	34	M30	24
30"	750	190	50	36	M30	24
32"	800	200	52	36	M30	28
34"	850	210	52	36	M30	28
36"	900	230	54	38	M30	28
40"	1000	250	58	40	M36	28

Method for Carrying & Keeping

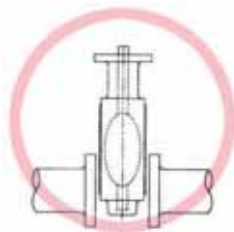


- Be careful not to scratch Disc and Seat ring.
The flange must be protected by plywood or other things when carrying valve.
- Valve must not be shocked and shaken too much.
(It may cause the breaking neck, lever, handle, and body)
- Valve is recommended to be kept and carried under the condition of opening.
- The suitable temperature is over -10°C and humidity is 60% while keeping valve.
- In keeping Valve, must check the operation once per three months.

How to Install Butterfly Valve

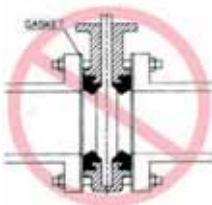


WRONG

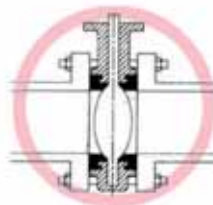


CORRECT

Centering & Flanging of Valve



WRONG ▲
Disc in closed position:gaskets used:Results-Seat distorted and over compressed causing high initial unseating torque problems

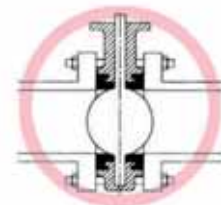


RIGHT ▲
Bolts spanned, disc edge with in body face-to-face.
No disc edge damage,proper sealing allowed

Aligning of Flange bolts



WRONG ▲
Piping misaligned:Result-Disc O.D. touches pipe I.D. causing disc edge damage. Increased torque & leakage.
Seat face, seals improperly without engagement



RIGHT ▲
Piping aligned properly when bolts tightened, disc in full open position :Result-disc clears adjacent pipe I.D., seat face seals properly, no excessive initial torque.

CERTIFICATE





AV ACE VALVE COMPANY LIMITED
[Http://www.ace-valve.co.kr](http://www.ace-valve.co.kr)

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