

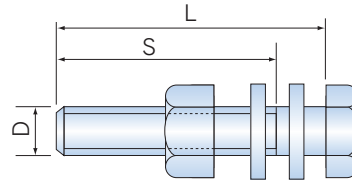
PIPE BOLT DIMENSIONS (REFERENCE: RECOMMENDED DATA)

DIAPHRAGM VALVE

(FOR JIS10K)

UNIT: mm

mm	inch	PIPE BOLT DIMENSIONS			VALVE TYPE
		D	S	L	
15	1/2	M12	30	55	TYPE 14
20	3/4	M12	30	55	
25	1	M16	38	60	
32	1 1/4	M16	38	65	
40	1 1/2	M16	38	65	
50	2	M16	38	70	
65	2 1/2	M16	38	75	
80	3	M16	38	75	TYPE 15
100	4	M16	38	75	
125	5	M20	52	80	
150	6	M20	52	85	TYPE 72
200	8	M20	52	90	
250	10	M22	56	100	



NOTES The diaphragm may become loose due to temperature changes during long storage, operation stop or while in use. Check the conditions and then retighten the bolts and nuts between the bonnet and the body to the "bonnet tightening torque". (For bonnet tightening torque, see the table below.)

ASAHI AV DIAPHRAGM VALVE BONNET TIGHTENING TORQUE

UNIT: N·m (kgf·cm)

mm ▶ inch ▶	TYPE 14									TYPE 15		TYPE 72	
	15	20	25	32	40	50	65	80	100	125	150	200	250
	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10
RUBBER DIAPHRAGM	3.0 {31}	3.0 {31}	5.0 {51}	5.0 {51}	12.0 {122}	15.0 {153}	13.0 {133}	18.0 {184}	35.0 {357}	45.0 {459}	45.0 {459}	30.0 {306}	30.0 {306}
PTFE DIAPHRAGM	5.0 {51}	5.0 {51}	8.0 {82}	8.0 {82}	15.0 {153}	20.0 {204}	15.0 {153}	20.0 {204}	40.0 {408}	45.0 {459}	45.0 {459}	30.0 {306}	30.0 {306}

BALL VALVE

CHECK VALVE

OTHER VALVES

- BALL VALVE ■ 3 WAY BALL VALVE TYPE 23, TYPE 23H ■ SWING CHECK VALVE ■ WAFER CHECK VALVE
- BALL CHECK VALVE ■ BALL FOOT VALVE ■ STOP VALVE (GLOBE VALVE), CONSTANT FLOW VALVE
- GAUGE VALVE ■ SEDIMENT STRAINER (TYPE Y)

FLANGED (JIS10K)

UNIT: mm

SIZE		13	15	20	25	32	40	50	65	75	100	125	150	200	250	300	350
SCREW SIZE		M12	M12	M12	M16	M16	M16	M16	M16	M16	M16	M20	M20	M20	M22	M22	M22
NO. OF FLANGE HOLES		4	4	4	4	4	4	4	4	8	8	8	8	12	12	16	16
FLANGE THICKNESS		14	14	15	15	16	16	20	22	22	22	24	26	28	30	30	34
NOMINAL LENGTH	TS FLANGE	55	55	60	60	65	65	70	75	75	75	85	90	100	100	100	110
	BALL VALVE TYPE 21, 21α	—	55	55	60	65	65	65	70	70	70	—	—	—	—	—	—
	3 WAY BALL VALVE TYPE 23, 23H	—	55	55	60	65	65	65	70	70	70	—	—	—	—	—	—
	SWING CHECK VALVE	—	55	55	60	65	65	70	75	75	75	85	85	100	—	—	—
	GAUGE VALVE	—	—	55	60	—	—	—	—	—	—	—	—	—	—	—	—
	BALL CHECK VALVE	—	60	60	65	—	65	75	—	80	80	—	—	—	—	—	—
	BALL FOOT VALVE	—	60	60	65	—	65	75	—	80	80	—	—	—	—	—	—
	STOP VALVE (GLOBE VALVE)	—	55	55	60	65	65	65	70	70	70	—	—	—	—	—	—
	CONSTANT FLOW VALVE	—	55	55	60	—	—	70	—	75	75	—	—	—	—	—	—
	SEDIMENT STRAINER (TYPE Y)	—	55	60	65	65	65	70	75	75	75	—	—	—	—	—	—
	WAFER CHECK VALVE	—	—	—	—	—	—	—	—	—	150	160	175	185	210	230	230

NOTES (1) The above values indicate the bolt dimensions when an AV TS flange and AV packing are used.
 (2) The numbers in a circle indicate the number of bolts required to connect one side of flange. When there is no indication, refer to the number of flange holes.

BUTTERFLY VALVE

BUTTERFLY VALVE TYPE 57, TYPE 56, TYPE 75 / PDCPD LARGE SIZE, ROTARY DAMPER

■ JIS10K UNIT: mm

mm	inch	BOLT A			BOLT B				QTY		
		d	L	S	d1	L1	S1	S2	BOLT A	BOLT B	NUT / WASHER
40	1 1/2		115	40					4		8
50	2		125								
65	2 1/2	M16	135								
80	3		135	45							
100	4		145						8		16
125	5		165	50							
150	6	M20	175								
200	8		195	55					12		24
250	10		225								
300	12	M22	245	60							
350	14		255	65							
400	16		290	60	M24	120			14	4	32
450	18	M24	310	65		120			16		40
500	20		320	75		120					
600	24		350			140			20		48
700	28	M30	370	80	M30	130					
800	32		410	70		140			8		
900	36		420	80		150					
1,000	40		500	90		180			24		56
1,100	44	M36	520	100	M36	190					
1,200	48		570	100		200			28		64

NOTES (1) In the above list, the values for size 40 to 350 mm indicate the bolt dimensions when an AVTS flange is used. The values for size 400 to 600 mm indicate the bolt dimensions when a JIS B2238 "steel pipe flange" (nominal pressure 10K, corrugated) is used. The values for size 700 to 1200 mm indicate the bolt dimensions when a JIS B2238 "iron pipe flange" (nominal pressure 10K or 5K) is used.
 (2) The quantity of nuts and washers for Bolt A indicates the number of 2 sets (1 bolt / 2 nuts, 2 washers). The quantity for Bolt B indicate the number of 1 set (1 bolt / 1 nut, 1 washer).

■ JIS5K UNIT: mm

mm	inch	BOLT A			BOLT B				QTY		
		d	L	S	d1	L1	S1	S2	BOLT A	BOLT B	NUT / WASHER
40	1 1/2		100								
50	2	M12	105	30					4		8
65	2 1/2		110								
80	3		120	35							
100	4	M16	130								
125	5		140	40					8		16
150	6		150								
200	8		195								
250	10	M20	225	55					12		24
300	12		240								
350	14		255	65							
400	16		260						16		32
450	18	M22	270	55							
500	20		280						20		40
600	24	M24	320	60							

NOTES (1) In the above list, the values for size 40 to 350 mm indicate the bolt dimensions when an AVTS flange is used. The values for 400 to 600 mm indicate the bolt dimensions when a JIS B2238 "steel pipe flange" (nominal pressure 10K, corrugated) is used.
 (2) The quantity of nuts and washers for Bolt A indicates the number of 2 sets (1 bolt / 2 nuts, 2 washers).
 (3) The values for 350 to 600 mm indicate the dimensions when a rotary damper is used.

■ WATERWORKS UNIT: mm

mm	inch	BOLT A			BOLT B				QTY		
		d	L	S	d1	L1	S1	S2	BOLT A	BOLT B	NUT / WASHER
50	2		125	40					4		8
80	3		135								
100	4	M16	150	45							
125	5		160						6		12
150	6		165								
200	8		185	50					8		16
250	10	M20	225								
300	12		240	55					10		20
350	14		240								
400	16	M22	290						12		24
450	18		310	60							
700	28	M24	350	60							32
800	32		380	60					16		40
900	36	M30	390	70	M30	130					
1,000	40		450	70		140			20	8	48
1,100	44		450	70		160					
1,200	48		510	70		160			24		56

NOTES (1) In the above list, the values for size 40 to 300 mm indicate the bolt dimensions when an AVTS flange is used. The values for size 350 to 1200 mm indicate the bolt dimensions when a JIS G5527 "ductile iron fitting" (nominal pressure 7.5K) is used.
 (2) The quantity of nuts and washers for Bolt A indicates the number of 2 sets (1 bolt / 2 nuts, 2 washers). The quantity for Bolt B indicate the number of 1 set (1 bolt / 1 nut, 1 washer).

BUTTERFLY VALVE TYPE 56D, 75D

■ JIS10K UNIT: mm

mm	inch	BOLT A			BOLT B		QTY		
		d	L	S	d1	L1	BOLT A	BOLT B	NUT / WASHER
400	16		290	60		120	14	4	32
450	18	M24	310	65	M24	120	16		40
500	20		320	65		120		8	
600	24	M30	350	75	M30	140	20		48

NOTES (1) In the above list, the values for size 400 to 600 mm indicate the bolt dimensions when a JIS B2238 "steel pipe flange" (nominal pressure 10K, corrugated) is used.
 (2) The quantity of nuts and washers for Bolt A indicates the number of 2 sets (1 bolt / 2 nuts, 2 washers). The quantity for Bolt B indicate the number of 1 set (1 bolt / 1 nut, 1 washer).

■ WATERWORKS UNIT: mm

mm	inch	BOLT A			BOLT B		QTY		
		d	L	S	d1	L1	BOLT A	BOLT B	NUT / WASHER
400	16	M22	290	60			12		24
450	18		310						
500	20	M24	320	60			16		32
600	24		340						

NOTES (1) In the above list, the values for size 400 to 600 mm indicate the bolt dimensions when a JIS G5527 "ductile iron fitting" (nominal pressure 7.5K) is used.
 (2) The quantity of nuts and washers for Bolt A indicates the number of 2 sets (1 bolt / 2 nuts, 2 washers).

BUTTERFLY VALVE TYPE 55

■ JIS10K UNIT: mm

mm	inch	d	BOLT A		QTY	
			L	S	BOLT A	NUT / WASHER
50	2		130		4	8
80	3	M16	140	35		
100	4		145		8	16
125	5		165			
150	6	M20	180	40		
200	8		195		12	24
250	10	M22	215			

■ JIS5K UNIT: mm

mm	inch	d	BOLT A		QTY	
			L	S	BOLT A	NUT / WASHER
50	2		110	30	4	8
80	3		125			
100	4	M16	135	40		
125	5		140		8	16
150	6		155			
200	8	M20	195	45	12	24
250	10		210			

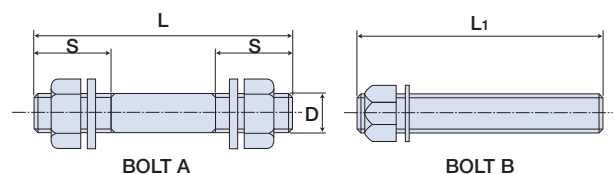
BUTTERFLY VALVE TYPE 55IS

■ JIS10K UNIT: mm

mm	inch	d	BOLT A		QTY	
			L	S	BOLT A	NUT / WASHER
50	2		130		4	8
80	3	M16	135	35		
100	4		140		8	16
125	5		155			
150	6	M20	160	40		

■ JIS5K UNIT: mm

mm	inch	d	BOLT A		QTY	
			L	S	BOLT A	NUT / WASHER
50	2		110	30	4	8
80	3		120			
100	4	M16	130	40	8	16
125	5		135			
150	6		135			



CONNECTING THROUGH BOLT TIGHTENING TORQUE

UNIT: N·m [kgf·cm]

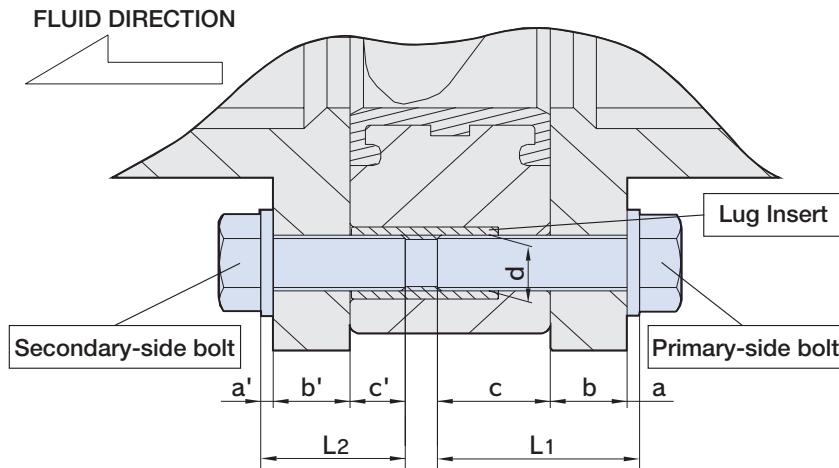
mm	40	50, 65	80, 100	125, 150	200, 250	300, 350	400, 450	500, 600	700, 800, 850	900, 1,000	1,100	1,200
inch	1 1/2	2, 2 1/2	3, 4	5, 6	8, 10	12, 14	16, 18	20, 24	28, 32, 34	36, 40	44	48
	20 {204}	22.5 {230}	30 {306}	40 {408}	55 {561}	60 {612}	80 {816}	100 {1020}	130 {1327}	170 {1735}	200 {2042}	220 {2245}

NOTE The bolt tightening torque for butterfly valve type 55IS of size 50 mm is 30 N-m.

PIPE BOLT DIMENSIONS (REFERENCE: RECOMMENDED DATA)

► BUTTERFLY VALVE

LUG BUTTERFLY VALVE TYPE 57L



1. BOLT LENGTH WHEN AV TS FLANGE 10K IS USED (WITH WASHER OF ISO 7092 OR EQUIVALENT)

For 80 and 100 mm, bolts with the same length can be used for both primary and secondary sides.

UNIT: mm

mm	inch	BOLT d (SIZE)	BOLT LENGTH		WASHER (SIZE)	Lug Insert		
			PRIMARY SIDE	SECONDARY SIDE		SCREW SIZE	WIDTH ACROSS FLATS	HEIGHT
			L1	L2				
80	3	M16	45	45	16	M16	24	40
100	4	M16	50	50	16	M16	24	40
125	5	M20	60	50	20	M20	30	50
150	6	M20	65	50	20	M20	30	50
200	8	M20	75	55	20	M20	30	60
250	10	M22	95	60	22	M22	32	70

BOLT LENGTH WHEN A FLANGE OTHER THAN IN 2.1 IS USED * HIGH NUTS LISTED ABOVE CAN BE USED.

<PRIMARY SIDE BOLT LENGTH, L1>

Primary side bolt length L1 = a Washer thickness + b Flange thickness + c (Resin thickness + Engagement allowance) UNIT: mm

mm	inch	a	b	c
80	3	WASHER THICKNESS TO BE USED	FLANGE THICKNESS TO BE USED	17
100	4			26
125	5			29
150	6			33
200	8			39
250	10			53

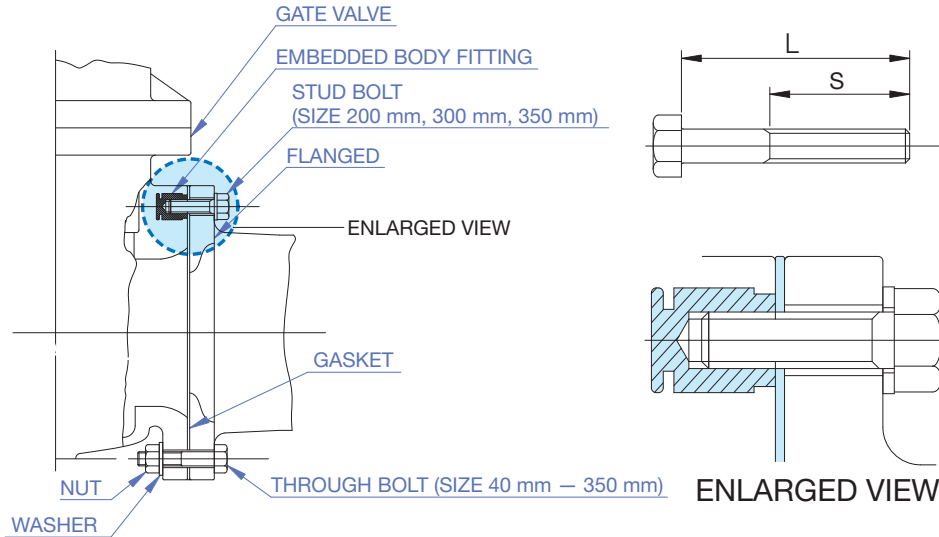
<SECONDARY SIDE BOLT LENGTH, L2>

Secondary side bolt length L2 = a' Washer thickness + b' Flange thickness + c' (Engagement allowance) UNIT: mm

mm	inch	a'	b'	c'
80	3	WASHER THICKNESS TO BE USED	FLANGE THICKNESS TO BE USED	13
100	4			13
125	5			13
150	6			16
200	8			16
250	10			18

GATE VALVE

PIPE BOLT DIMENSIONS

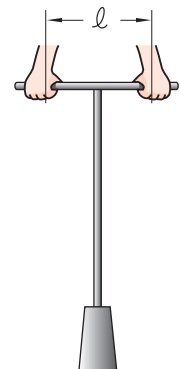


mm	STANDARD																
	WATERWORKS STANDARD AV TS FLANGE				WATERWORKS STANDARD / IRON FLANGE JIS G5527				JIS 10K STANDARD AV TS FLANGE				JIS 10K STANDARD / IRON FLANGE JIS B2212				
	BOLT NUT SIZE	WASHER SIZE	L	S	BOLT NUT SIZE	WASHER SIZE	L	S	BOLT NUT SIZE	WASHER SIZE	L	S	BOLT NUT SIZE	WASHER SIZE	L	S	
THROUGH BOLT	32	—	—	—	—	—	—	—	—	M16	16	70	38	M16	16	70	38
	40	—	—	—	—	—	—	—	—	M16	16	70	38	M16	16	70	38
	50	M16	16	75	38	M16	16	70	38	M16	16	75	38	M16	16	70	38
	65	—	—	—	—	—	—	—	—	M16	16	75	38	M16	16	75	38
	75(80)	M16	16	80	38	M16	16	80	38	M16	16	80	38	M16	16	75	38
	100	M16	16	85	38	M16	16	80	38	M16	16	80	38	M16	16	75	38
	125	M16	16	85	38	M16	16	85	38	M20	20	85	46	M20	20	85	46
	150	M16	16	85	38	M16	16	85	38	M20	20	90	46	M20	20	85	46
	200	M16	16	90	38	M16	16	90	38	M20	20	90	46	M20	20	85	46
	250	M20	20	95	46	M20	20	90	46	M22	22	100	50	M22	22	90	50
300	M20	20	95	46	M20	20	95	46	M22	22	100	50	M22	22	90	50	
350	—	—	—	—	M22	22	95	50	M22	22	110	50	M22	22	95	50	
STUD BOLT	200	—	—	—	—	—	—	—	—	M20	20	50	46	M20	20	45	45
	250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	300	—	—	—	—	—	—	—	—	M22	22	55	50	M22	22	50	50
	350	—	—	—	—	M22	22	50	50	M22	22	60	50	M22	22	50	50

2. LENGTH OF T-SHAPED HANDLE OF AV GATE VALVE (CAP TYPE)

The close-off torque (torque required for complete closure) and the length of T-shaped handle handgrip are as follows:

mm	CLOSE-OFF TORQUE N·m {kgf·cm}	T-SHAPED HANDLE ℓ (mm) [REFERENCE]	mm	CLOSE-OFF TORQUE N·m {kgf·cm}	T-SHAPED HANDLE ℓ (mm) [REFERENCE]
32·40	15 {153}	200	150	60 {612}	350
50	15 {153}	200	200	100 {1020}	550
65	23 {235}	200	250	110 {1122}	550
75(80)	25 {255}	200	300	130 {1327}	700
100	30 {306}	200	350	150 {1531}	700
125	40 {408}	300			



- NOTES**
- (1) When turning the T-shaped handle, do not insert a pipe or similar object. Do not turn it with two people either.
 - (2) When the shaft is too long, adjust the ℓ dimension using the handgrip.
 - (3) The length of handle handgrip, ℓ, is set so that the operating force (one hand) is approximately 150N to 200N {15kgf to 20kgf}.
 - (4) Contact us when using an outside screw section valve (for vacuum sewage) because a special turning bar is required.