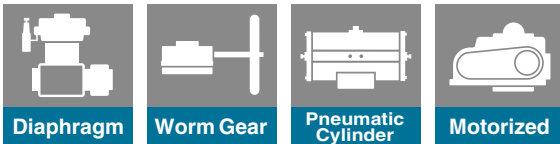
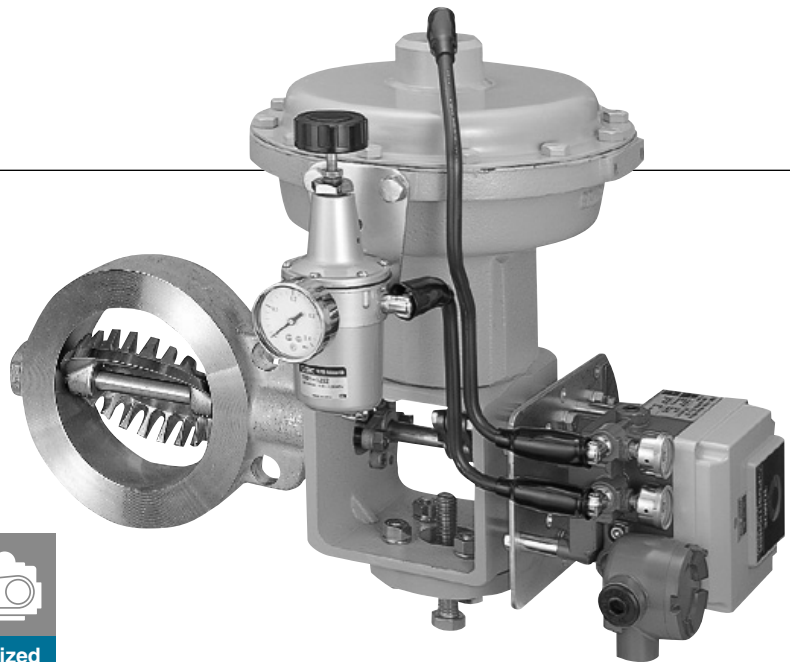


# 507V



### Features and Benefits

For various applications such as air conditioning systems, pulp and paper mills, steel mills, chemical plants, food processing and many other process industries, the 507V rotary control valve will support your fluid control requirements.

#### Flexible control over a wide range

The 507V allows complete control over the full range from the open to the closed position. The valve can also handle high temperatures of up to 400 degrees C such as in steam lines and it will respond quickly and flexibly to any changes within the operating parameters of the process line. The 507V therefore is the optimum valve for any control system processing multiple products where the operating conditions change from time to time in accordance with process requirements.

**Model 507V is the high temperature version of our rotary control valve designed for exclusive use in the regulation of fluids.**

#### Cost-effective rotary control valve

In spite of its compact size and light weight, the 507V has a large valve capacity that minimises the energy loss of fluid at the fully open position.

This compact design reduces the required size of the actuator, installation space and piping supports. It also minimises vibration of control systems and increases the operating life.

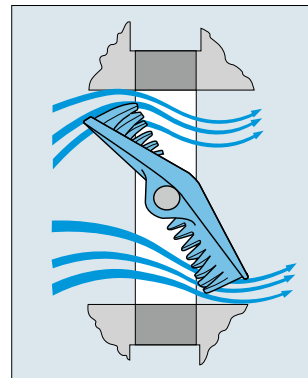
These features provide the benefit of reducing the total operating cost of your plant.

### General Description

The high performance characteristics of this model originate from its unique design with a teeth and gull-wing shaped disc that touches the seat at a certain angle (Fig.1). The teeth are arranged on the circumference of the disc towards either direction of flow. The 'touch-at-an-angle' disc assists the reduction of seating and unseating torque and facilitates smooth control of the valve.

Other benefits include high rangeability, low noise level and anticavitation.

This model covers a wide temperature range in the fluid control of air conditioning systems, pulp and paper mills, chemical plants, steel mills and food processing applications.



## General

With guide-vane-like teeth around the disc edge, and the disc touching the seat at a certain angle, this product is a compact, lightweight and highly cost-effective, high-performance rotary control valve that exhibits outstanding control characteristics. The valve provides steady control over a wide range with higher rangeability, better cavitation resistance, lower dynamic torque, lower noise level, and a better leakage rate than any other rotary control valve.

Two models, the 507V and 508V, are available for a range of severe applications. The 507V is the optimum type for fluid control of high pressure, high temperature systems. The 508V is characterized by its rubber seat ring, and eliminates the need for any additional stop valve because of its complete sealing capability.

## Fundamental Structure

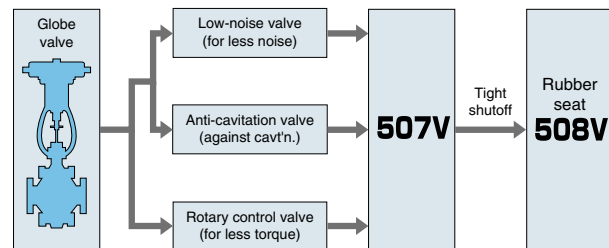
This product has two basic design features that are responsible for the outstanding performance. One is the teeth around the disc and

the other is the gull-wing-like design of the disc.

The teeth on the circumference of the disc break up the fluid energy acting on it with a resultant reduction of pressure recovery.

Unlike conventional flat discs, the gull-wing-like disc of the product touches the seat at a certain angle for reduced seating/unseating torque. This results in steady control of the valve.

## Recent trend toward rotary type control valves



## Standard Specifications

Product characteristics		Wafer type	
Valve size	50, 80, 100, 150, 200mm	250, 300, 350, 400mm	
Applicable flange standard	JIS 10K/16K/20K, ASME Class150/300, DIN NP10, BS 4504 PN10	JIS 10K, ASME Class150, DIN NP10, BS 4504 PN10	
Face to face dimensions	Manufacturer's standard		
Max.working pressure	Refer to "Allowable differential pressure"		
Seat leakage *1	FCI 70-2 Class II		
Flow direction	One way (Flow direction marked on body)		
Test Pressure	Body shell	Working pressure x 1.5 times (Max 1.5Mpa)	
	Seat leak	Measure clearance between body and disc at fully closed position	
Working temperature range *2	Cast steel	-10 to 400 degrees C Following materials are used for 200 degrees C and over; Bearings :Carbon Packing: exfoliated graphite	
	Stainless steel	-50 to 400 degrees C Following materials are used for 200 degrees C and over; Bearings :Carbon Packing: exfoliated graphite	
Standard Materials	Body	Cast steel SCPH2 (A216 WCB)	Stainless steel SCS14
	Disc *3	Stainless steel SCS14 (A351 CF8M)	
	Stem *4	Stainless steel SUS630 (SUS316) *4	
	Bearings	Reinforced PTFE, Carbon graphite (200 degrees C and over)	
	Packings	Exfoliated graphite	
Rangeability	100:1		
Valve opening	Max. 70°		
Flow characteristics	Equal percent		
Top flange	Manufacturer's standard		
Piping flange gasket	Required		
Coating	Under 200 degrees C: Silicone resin coating (Munsell N7), no painting for stainless steel 200 degrees C and over: Heat resistance paint (Silver)		

\*1 The disc is gull wing shaped and touches the metal seat at an angle. This design minimises leakage to a level less than 0.5% of the rated Cv which is equal to or lower than the leakage permitted on a double-seat globe control valve.

\*2 Please consult us if the application is in the range of 400 to 600 degrees C.

\*3 The disc is electroless plated with nickel.

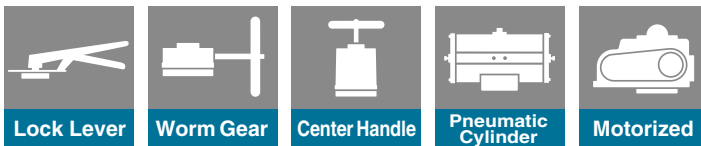
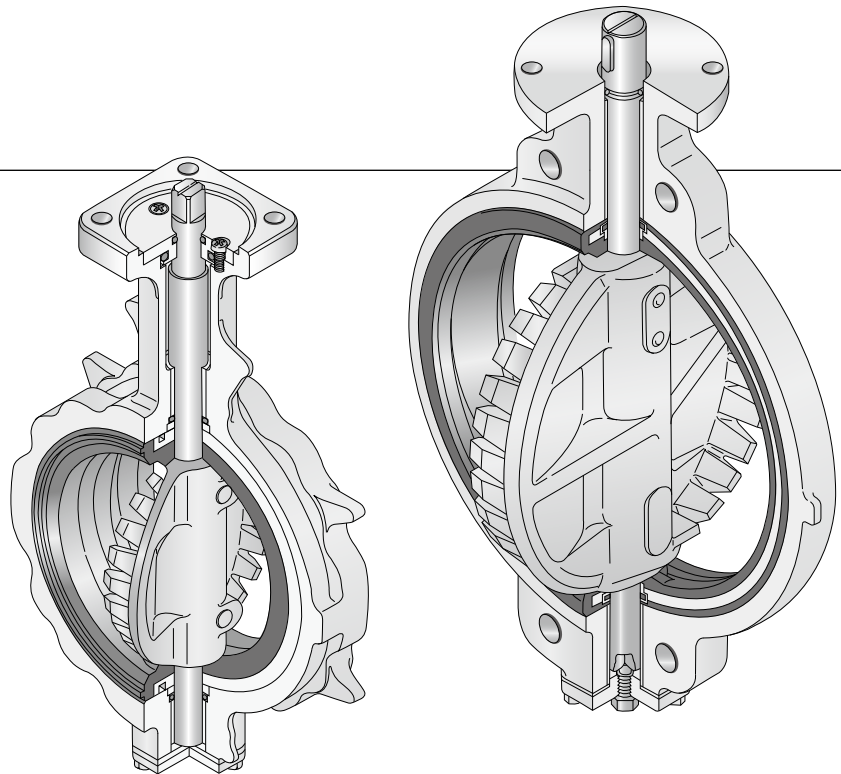
\*4 Please consult us if an SUS316 stem is required.

## 507V Seat leakage

### ■ FCI 70-2, under Class II (Cv rating 0.5%)

Nominal size		% of Max.Cv
mm	inch	
50	2	0.5
80	3	0.5
100	4	0.5
150	6	0.5
200	8	0.5
250	10	0.5
300	12	0.5
350	14	0.5
400	16	0.5

# 508V



## Features and Benefits

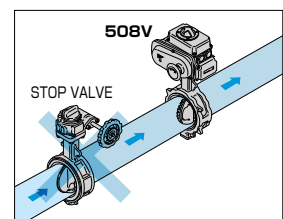
Except for the rubber seat ring, the 508V has the same design principle as the 507V. Excellent controllability is achieved by having the innovative teething disc seating at a certain angle. The 508V has a reinforced core rubber seat ring allowing it to be used for high pressure service up to 1.6MPa with complete tight shut-off.

### Rubber seat ring with a "control cosine curve" profile

Taking into consideration the cosine curve profile rubber seat ring incorporated into our models 700G and 773Z, we developed a new type of seat ring for exclusive use in the 508V. The 508V has a reinforced core rubber seat ring incorporated with a "control cosine curve" profile for sizes between 50mm and 200mm. This seat ring design ensures a tight shut-off up to a working pressure of 1.6MPa. The 508V available in sizes between 250mm and 350mm has a similar seat ring design and profile, but the seat ring is backed up by a precisely formed metal core which is encapsulated inside the rubber. This design enables the control valve to function under severe conditions of high velocity, a large differential pressure or a high vacuum. (The maximum allowable shut-off pressure is 1.0MPa).

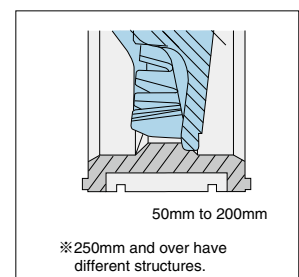
### No additional stop valve, less installation space and less cost

Because of its reliable sealing effect against a high differential pressure, the 508V does not require an additional stop valve. You save on installation space and benefit from the excellent cost effective features of our rotary control valve.



### Satisfies both JIS and ISO standards for extended applications

The 508V is available in different flange specifications. Also, its face-to-face dimension meets both JIS and ISO requirements. Therefore this model is applicable for various industrial applications worldwide.



## General

With guide-vane-like teeth around the disc edge, and the disc touching the seat at a certain angle, this product is a compact, lightweight and highly cost-effective, high-performance rotary control valve that exhibits outstanding control characteristics. The valve provides steady control over a wide range with higher rangeability, better cavitation resistance, lower dynamic torque, lower noise level, and a better leakage rate than any other rotary control valve.

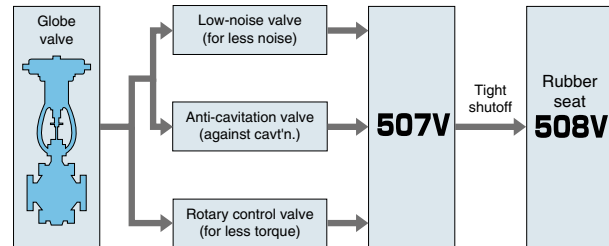
Two models, the 507V and 508V, are available for a range of severe applications. The 507V is the optimum type for fluid control of high pressure, high temperature systems. The 508V is characterized by its rubber seat ring, and eliminates the need for any additional stop valve because of its complete sealing capability.

## Fundamental Structure

This product has two basic design features that are responsible for the outstanding performance. One is the teeth around the disc and the other is the gull-wing-like design of the disc.

The teeth on the circumference of the disc break up the fluid energy acting on it with a resultant reduction of pressure recovery. Unlike conventional flat discs, the gull-wing-like disc of the product touches the seat at a certain angle for reduced seating/unseating torque. This results in steady control of the valve.

## Recent trend toward rotary type control valves

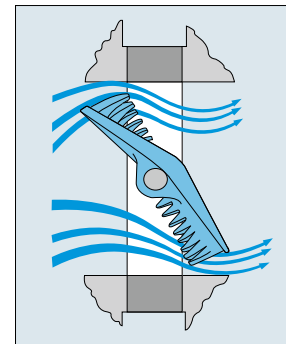


## General Description

With a specially designed rubber seat ring, Model 508V ensures tight shut-off and eliminates the need for any additional stop valve required by conventional control valves.

The high performance characteristics of this model originate from its unique design with a teeth and gull-wing shaped disc that touches the seat at a certain angle (Fig.1). The teeth are arranged on the circumference of the disc towards either direction of flow. The 'touch-at-an-angle' disc assists the reduction of seating and unseating torque and facilitates smooth control of the valve. Other benefits include high rangeability, low noise level and anti-cavitation.

The face-to-face dimension meets both JIS and ISO standards so the 508V is applicable for various industrial fields including air conditioning systems.



## Standard Specifications

Type		Wafer type		
Valve size ※1		50, 80, 100, 150, 200mm	250, 300, 350mm	400, 450, 500, 600mm
Applicable flange standard		JIS 5K/10K/16K/20K, ASME Class150, DIN PN 10/16, BS 4504 PN 10/16, BS10 'E', 'F', JIS G 5524, 5527	JIS 10K/16K, ASME Class150, DIN PN 10/16, BS 4504 PN 10/16, BS10 'E', 'F', JIS G 5524, 5527	JIS 10K/16K, ANSME Class150, DIN PN 10/16, BS 4504 PN 10/16, BS10 'E', 'F', JIS G 7.5, 5527
Face to face dimensions ※2		JIS B 2002 Series 46 / ISO 5752 Basic Series 20 Wafer butterfly valve (short)		
Max.working pressure		1.6MPa		1.0MPa
Seat leakage		Tight-shutoff		
Flow direction		One way (Flow direction marked on body)		
Test Pressure	Shell test	Nominal pressure x 1.5 times 10K: 1.5MPa 16K: 2.4MPa 20K: 3.0MPa		
	Seat leakage	Working pressure x 1.1 times 50 to 200mm: Max. 1.8MPa 250 to 600mm: Max. 1.1MPa (In case of NBR seat , Max. pressure is 1.1MPa for all size.)		
Working temperature range ※3		-20 to 120 degrees C (NBR: -10 to 80 degrees C)		
Working temperature in continuous use ※2		0 to 70 degrees C (NBR : 0 to 60 degrees C)		
Standard Materials	Body	FCD450 (No fluid exposure)		
	Disc	SCS14		SCS13
	Stem	SUS420J2 (No fluid exposure)		
	Seatingring ※4	*EPDM core-reinforced (Option - NBR core-reinforced)		NBR core-reinforced (Option- *EPDM core-reinforced)
Rangeability ※5		100:1		
Valve opening		Max. 70°		
Flow characteristics		Nearly Equal percent		
Top flange		ISO5211/1		Manufacturer's standard
Condensation prevention structure		Optional (Condensation prevention resin column)		
Piping flange gasket		Not required		
Coating		Silicon resin coating (Munsell N7)		Lacquer Primer (Munsell N7)

※1 As for 65mm and 125mm, please consult us.

※2 350mm only : JIS B 2002 Series 47 / ISO Basic Series 25 (Medium)

※3 'Working temperature in continuous use' stands for the temperature continuously kept exceeding on hour.

※4 If the fluid contains chlorine, EPDM and NBR seat ring may deteriorate early due to combined factors including density and temperature.

In this case, 846T/847T(PTFE seated) is recommended. For details consult us.

Do not use an EPDM seat ring if the fluid contains even a slight amount of oil.

※5 Rengeability of 65mm and 125mm is 50:1.

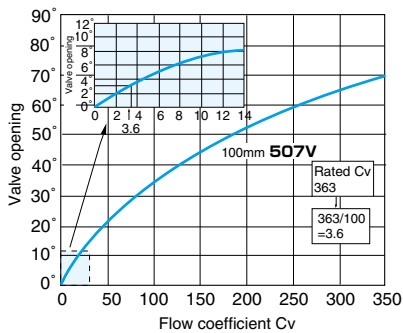
# 507V/508V

## Multiple merits for multiple applications

### Controllability

#### High rangeability

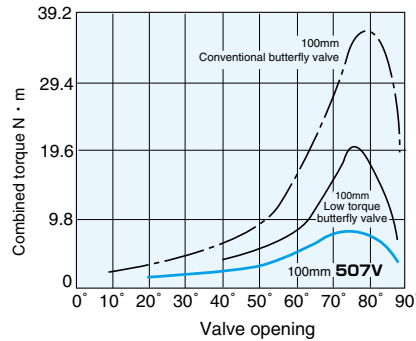
- \*The wide range of controllability permits flexible adjustment to any changes in the process conditions of production lines. This merit is especially beneficial to multifold productions.
- \*The conventional "split range control" with twin valves is no longer required. One product is enough to cover the whole range.



With its nearly "equal percent" flow characteristics and its very low leakage rate, the product offers an extremely high rangeability of 100:1.

#### Low dynamic torque

- \*The steady performance ensures more precise control.
- \*The compact actuator saves space and energy.

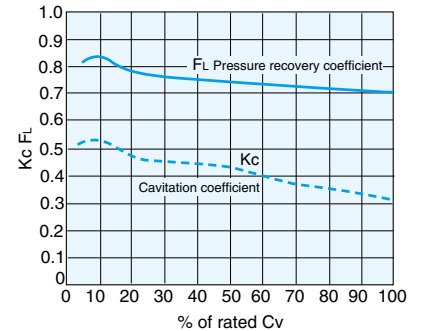


The above graph shows a comparison of the product with other typical valves. The patented disc has remarkably reduces the dynamic torque.

### Reliability

#### Excellent cavitation resistance

- \*The outstanding cavitation resistance increases the operational life of the valve and pipeline, and improves the reliability of the system.
- \*This model is works in more severe requirements than ever.

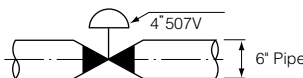


A high coefficient of initial cavitation (Kc), and a high pressure recovery coefficient (FL), inhibit the occurrence of cavitation.

### Cv value

Size		Opening angle							
mm	inch	10°	20°	30°	40°	50°	60°	70°	
50	2	Cv	3	11	22	38	53	69	85
		CvFp	3	11	22	37	50	63	74
80	3	Cv	14	33	58	88	120	140	176
		CvFp	14	33	58	86	115	133	158
100	4	Cv	17	43	80	127	179	250	363
		CvFp	17	43	80	126	175	238	323
150	6	Cv	55	120	210	320	450	590	825
		CvFp	55	120	208	315	441	560	730
200	8	Cv	70	175	350	620	1025	1265	1595
		CvFp	70	174	345	608	974	1151	1388
250	10	Cv	96	245	455	718	1135	1470	2515
		CvFp	96	244	450	710	1115	1396	2188
300	12	Cv	160	410	760	1200	1730	2460	3610
		CvFp	160	405	750	1175	1644	2238	3130
350	14	Cv	200	500	900	1500	2200	3200	4440
		CvFp	198	495	891	1470	2090	2910	3640
400	16	Cv	210	550	1020	1614	2327	3310	5650
		CvFp	210	548	1015	1598	2280	3145	5090

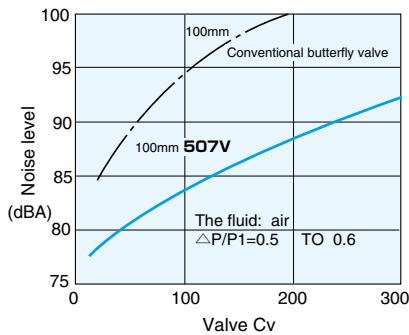
Remarks:  
CvFp : Pipe size=1.5×Valve size  
EX:



## Environmental considerations

### Low noise level

- \*Provides better work environment.
- \*Especially in air and gas applications, this product has a lower noise level by 5 to 10dBA and meets and exceeds noise regulations



The teeth on the disc cut the flow into fine jet streams.  
This is the most effective device for lowering the noise level when the valve is half open.

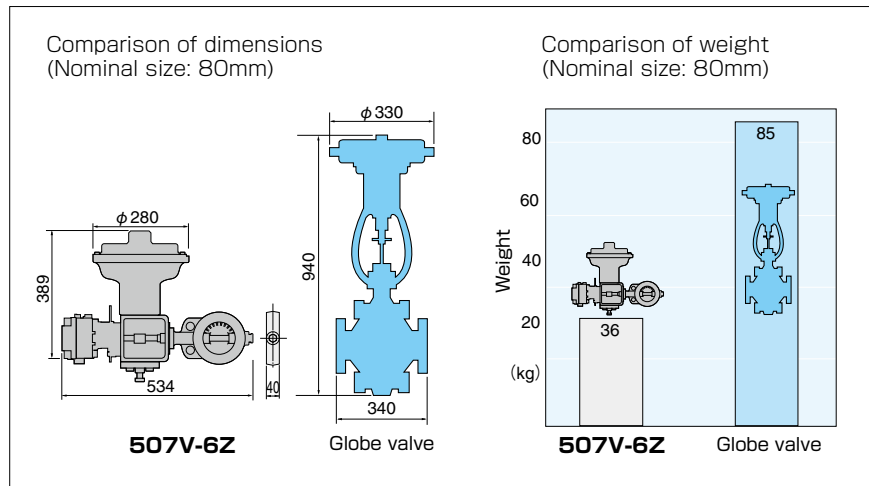
## Cost merit

### Larger valve capacity

- \*Reduces loss of energy at the fully open position.
- \*Allows one to two sizes of valve reduction in comparison with a conventional valve.

### Compact and lightweight design

- \*Permits compact piping arrangement.
- \*Allows the use of a portable remote controller unit.
- \*Eliminates vibration problems of the piping system, and improves operational life.



### Simple design

- \*Permits easy control of spare parts.
- \*Facilitates easy maintenance.
- \*Has a reduced number of parts and improved reliability.

## Pressure recovery factor (FL), coefficient of incipient cavitation (Kc)

Opening angle	10°	20°	30°	40°	50°	60°	70°
Pressure recovery factor (FL)	0.85	0.80	0.78	0.76	0.73	0.71	0.70
Coefficient of incipient cavitation (Kc)	0.55	0.50	0.47	0.45	0.40	0.37	0.32

# 507V

## 507V Actuator selection chart

### 507V

型番	Size $\left(\frac{\text{mm}}{\text{inch}}\right)$								
	50	80	100	150	200	250	300	350	400
	2	3	4	6	8	10	12	14	16
2S	DGH-1				DGH-2				
7E,3A	T85		T200	T380	T750		TGA-100		
7G,7F 3K,3U	T200S		T380S		TG-12S				
4I	4I-1		4I-2		4I-2.5	4I-3			
6Z	280H				400H				

Note: The selection of actuator may change depending on the differential pressure and temperature. Please contact our sales staff for details.

## 507V Allowable differential pressure for 7E

### Double-action Cylinder (Stem 630ss)

(MPa)

Nominal size			Cv % (Cv/Rated Cv)					
			0	20	40	60	80	100
			Valve opening %					
mm	inch	Cylinder	0	41	57	69	86	100
50	2	T85	4.9	1.54	3.33	2.94	2.94	2.94
80	3	T85	4.9	1.01	2.25	1.86	1.86	1.86
100	4	T85	3.43	1.37	0.97	0.78	0.78	0.78
150	6	T200	1.37	0.48	0.34	0.29	0.29	0.29
200	8	T380	1.17	0.30	0.20	0.14	0.14	0.14
250	10	T380	1.47	0.42	0.28	0.19	0.19	0.19
300	12	T750	0.98	0.25	0.16	0.12	0.12	0.12
350	14	T750	0.64	0.16	0.10	0.08	0.08	0.08
400	16	T750	0.59	0.11	0.07	0.06	0.06	0.06

507V Allowable differential pressure for 7G, 7F

■ Single-action Cylinder (Stem 630ss)

(MPa)

Nominal size			Cv % (Cv/Rated Cv)					
			0	20	40	60	80	100
			Valve opening %					
mm	inch	Cylinder	0	41	57	69	86	100
50	2	T200S	4.90	1.28	3.33	2.94	2.94	2.94
80	3	T200S	4.90	0.85	2.25	1.86	1.86	1.86
100	4	T380S	3.43	1.06	0.79	0.75	0.78	0.78
150	6	T380S	1.37	0.36	0.26	0.24	0.29	0.29
200	8	T380S	1.17	0.30	0.20	0.14	0.14	0.14

507V Allowable differential pressure for 6Z

■ Diaphragm Actuator (Stem 630ss)

(MPa)

Nominal size		Model	Supply pressure (MPa)	Spring range (kPa)	Cv % (Cv/Rated Cv)					
					Close	20	40	60	80	100
		Valve opening %								
mm	inch				0	41	57	69	86	100
50	2	280H	0.27	60 to 220	4.90	4.90	3.33	2.94	2.94	2.94
80	3	280H	0.27	60 to 220	4.90	3.13	2.25	1.86	1.86	1.86
100	4	280H	0.27	60 to 220	3.43	1.37	0.97	0.78	0.78	0.78
150	6	280H	0.27	60 to 220	1.37	0.48	0.34	0.29	0.29	0.29
200	8	280H	0.27	60 to 220	1.21	0.30	0.20	0.14	0.14	0.14
250	10	400H	0.27	60 to 190	1.50	0.36	0.25	0.21	0.20	0.20
300	12	400H	0.27	60 to 190	1.03	0.22	0.14	0.12	0.12	0.12
350	14	400H	0.27	60 to 190	0.64	0.15	0.10	0.09	0.08	0.08
400	16	400H	0.27	60 to 190	0.59	0.10	0.07	0.06	0.05	0.05



# 507V

## 507V Allowable differential pressure on stem

### ■SUS630

(MPa)

Nominal size		Cv % (Cv/Rated Cv)					
		0	20	40	60	80	100
		Valve opening %					
mm	inch	0	41	57	69	86	100
50	2	4.90	4.90	3.33	2.94	2.94	2.94
80	3	4.90	3.13	2.25	1.86	1.86	1.86
100	4	3.43	1.37	0.97	0.78	0.78	0.78
150	6	1.37	0.48	0.34	0.29	0.29	0.29
200	8	1.17	0.30	0.20	0.14	0.14	0.14
250	10	1.47	0.42	0.28	0.19	0.20	0.20
300	12	0.98	0.25	0.16	0.12	0.12	0.12
350	14	0.64	0.16	0.10	0.08	0.08	0.08
400	16	0.59	0.11	0.07	0.06	0.06	0.06

### ■SUS316

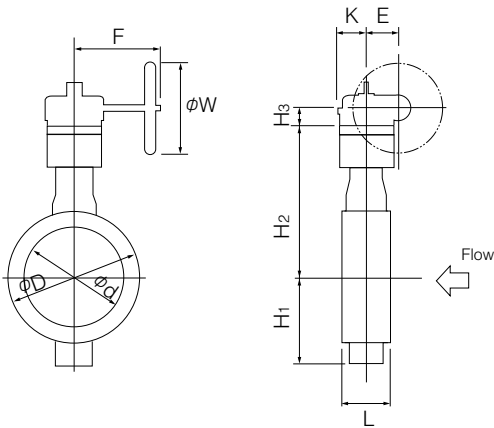
(MPa)

Nominal size		Cv % (Cv/Rated Cv)					
		0	20	40	60	80	100
		Valve opening %					
mm	inch	0	41	57	69	86	100
50	2	4.90	2.45	1.76	1.57	1.57	1.57
80	3	3.13	1.56	1.17	0.98	0.98	0.98
100	4	1.66	0.70	0.53	0.39	0.39	0.39
150	6	0.78	0.24	0.16	0.13	0.13	0.13
200	8	0.54	0.15	0.10	0.08	0.08	0.08
250	10	0.73	0.21	0.14	0.12	0.12	0.12
300	12	0.51	0.12	0.08	0.06	0.06	0.06
350	14	0.38	0.08	0.06	0.05	0.05	0.05
400	16	0.32	0.06	0.04	0.03	0.03	0.03

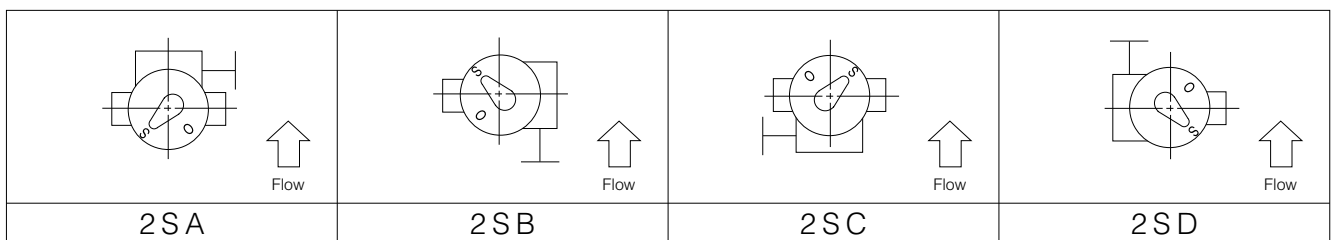
**Worm gear type 507V-2S (50mm to 400mm)**

Nominal size		Dimension (mm)										Gear type	Approx. Mass (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	E	K	F	$\phi W$		
50	2	49	92	40	63	183	32	58	93	156	160	DGH-1	13
80	3	73	127	40	86	201	32	58	93	156	160	DGH-1	15
100	4	97	155	40	98	224	32	58	93	156	160	DGH-1	16
150	6	146	216	52	129	262	32	58	93	156	160	DGH-1	23
200	8	194	265	62	184	283	32	58	93	161	200	DGH-1	32
250	10	241	324	89	196	393	42	85	126	246	280	DGH-2	60
300	12	289	370	89	230	446	42	85	126	246	280	DGH-2	70
350	14	318	415	89	256	431	42	85	126	246	280	DGH-2	86
400	16	364	470	108	296	453	42	85	126	246	280	DGH-2	100

**507V-2S**



**2S Installation direction**



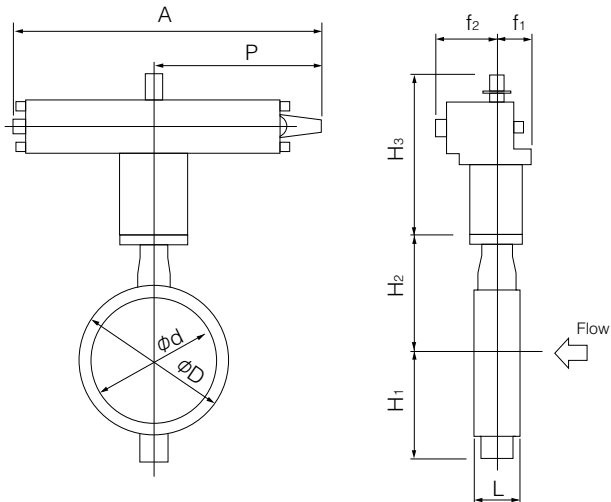
# 507V

## Double-acting Pneumatic Cylinder Type 507V-3A (350mm, 400mm)

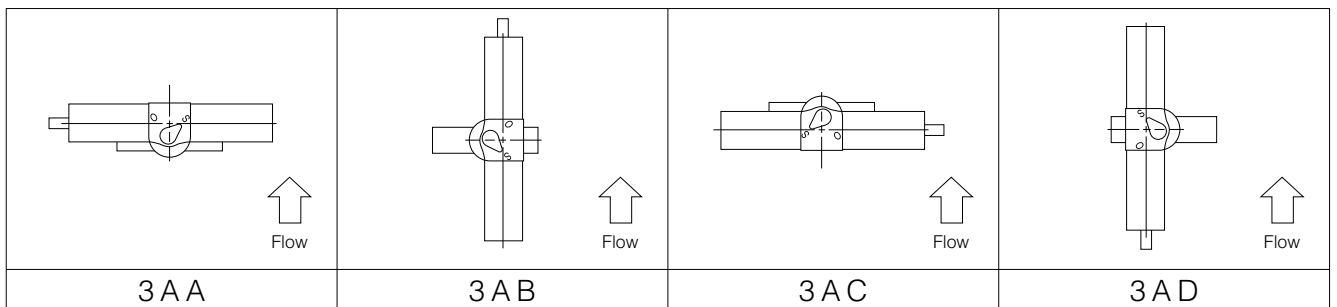
Nominal size		Dimension (mm)										Cylinder type	Approx. Weight (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	f <sub>1</sub>	f <sub>2</sub>		
350	14	318	415	89	256	316	404	783	433	77.5	133	TGA-100	95
400	16	364	470	108	296	338	404	783	433	77.5	133	TGA-100	110

• A free angle adjuster comes with the pneumatic cylinder.

### 507V-3A



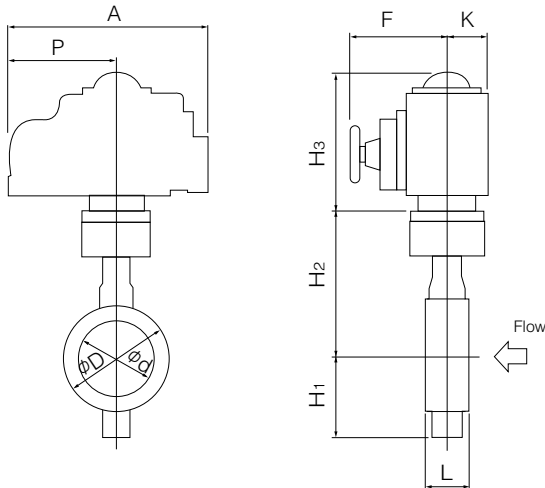
### 3A Installation Direction



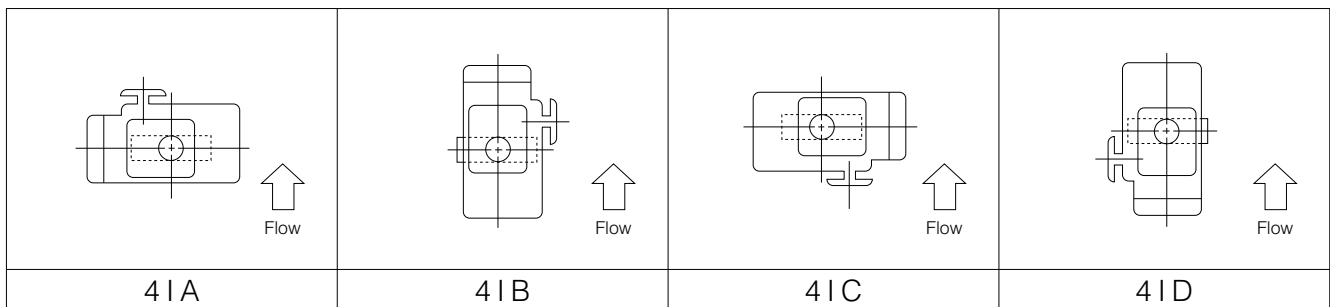
Single Phase Electric Motor Type 507V-4I (50mm to 400mm)

Nominal size		Dimension (mm)										Motor type	Approx. Weight (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	F	K		
50	2	49	92	40	63	198	191	252	138	126	65	4 I-1	18.3
80	3	73	127	40	86	216	191	252	138	126	65	4 I-1	19.3
100	4	97	155	40	98	239	191	252	138	126	65	4 I-1	20.3
150	6	146	216	52	129	262	224	310	167	154	85	4 I-2	24
200	8	194	265	62	184	283	224	310	167	154	85	4 I-2	34
250	10	241	324	89	196	413	227	310	167	154	85	4 I-2.5	51
300	12	289	370	89	230	446	255	388	223	246	136	4 I-3	70
350	14	318	415	89	256	431	255	388	223	246	136	4 I-3	86
400	16	364	470	108	296	453	255	388	223	246	136	4 I-3	100

■ 507V-4I



■ 4I Installation Direction



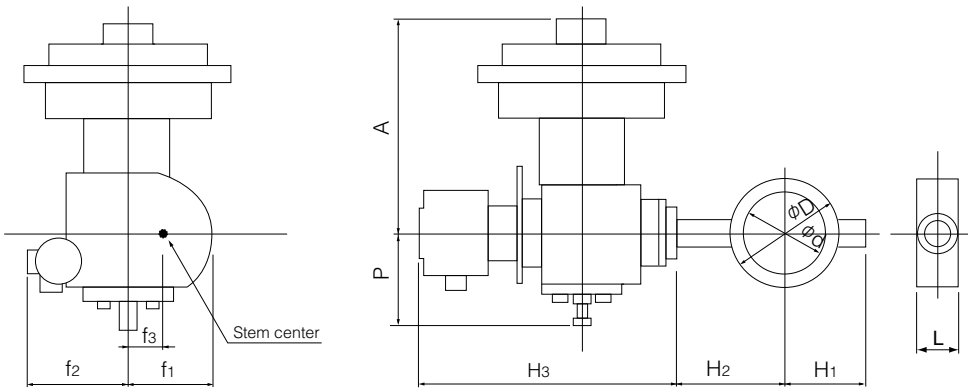
# 507V

## 507V-6Z (50mm to 400mm) with diaphragm actuator

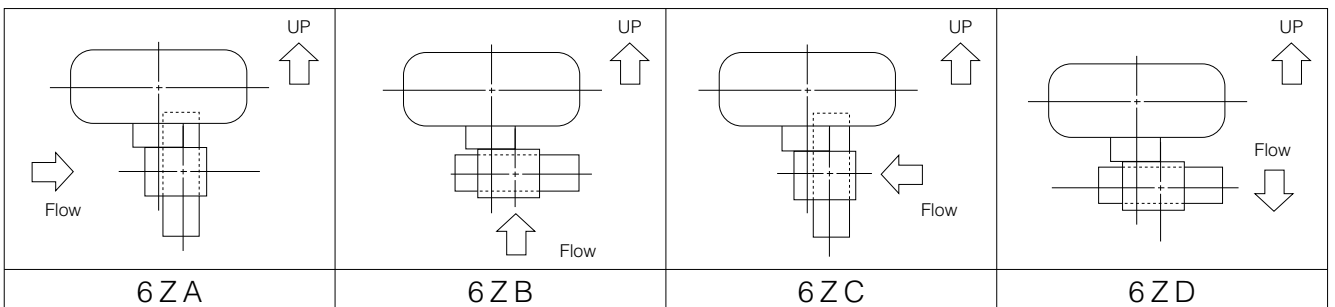
Nominal size		Dimension (mm)											Diaphragm type	Approx. Mass (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	f <sub>1</sub>	f <sub>2</sub>	f <sub>3</sub>		
50	2	49	92	40	63	108	333	310	126	124	164	36	280H-M	35
80	3	73	127	40	86	126	333	310	126	124	164	36	280H-M	37
100	4	97	155	40	98	149	333	310	126	124	164	36	280H-M	38
150	6	146	216	52	129	187	333	310	126	124	164	36	280H-M	45
200	8	194	265	62	184	208	333	310	126	124	164	36	280H-M	54
250	10	241	324	89	196	278	379	440	185	124	164	50	400HP	90
300	12	289	370	89	230	331	379	440	185	124	164	50	400HP	100
350	14	318	415	89	256	316	379	440	185	124	164	50	400HP	115
400	16	364	470	108	296	338	379	440	185	124	164	50	400HP	130

Remarks: H<sub>3</sub> shows the dimension when the positioner (TCE2000) is installed.  
The H<sub>3</sub> dimension will change depending on the positioner type.

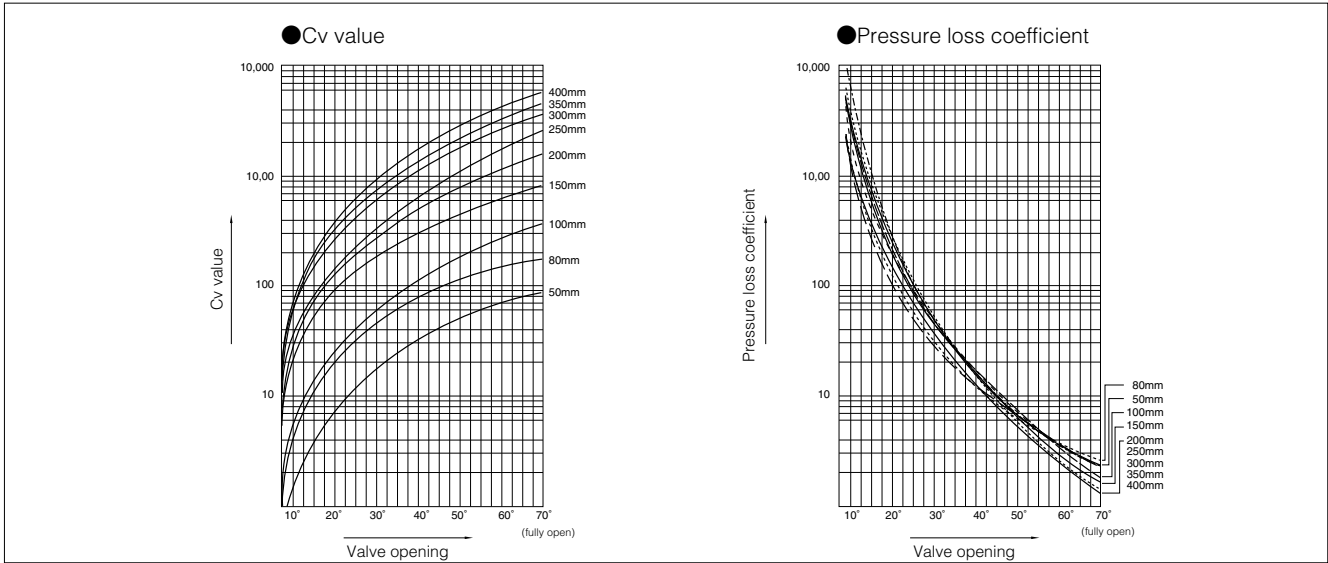
### 507V-6Z



### 6Z Installation direction



### 507V Cv value/pressure loss coefficient



### 507V Cv value

Nominal size		Valve opening						
mm	inch	10°	20°	30°	40°	50°	60°	70°
50	2	3	11	22	38	53	69	85
80	3	14	33	58	88	120	140	176
100	4	17	43	80	127	179	250	363
150	6	55	120	210	320	450	590	825
200	8	70	175	350	620	1020	1265	1595
250	10	96	245	455	718	1135	1470	2515
300	12	160	410	760	1200	1730	2460	3610
350	14	200	500	900	1500	2200	3200	4440
400	16	210	550	1020	1614	2329	3310	5650

### 507V Pressure loss coefficient

Nominal size		Valve opening						
mm	inch	10°	20°	30°	40°	50°	60°	70°
50	2	1832	136	34.1	11.4	5.9	3.5	2.3
80	3	406	73	23.6	10.3	5.5	4.1	2.6
100	4	810	127	36.6	14.5	6.5	3.1	1.8
150	6	367	77	25.2	10.9	5.5	2.8	1.7
200	8	697	111	31.3	11.3	4.6	2.1	1.4
250	10	889	136	39.6	14.2	5.4	2.5	1.3
300	12	748	100	30.7	11.0	4.7	2.3	1.3
350	14	815	115	32.6	11.7	5.0	2.4	1.4
400	16	1126	149	37.2	12.5	5.0	2.3	1.4

### 507V Pressure recovery coefficient (FL) and Cavitation coefficient (Kc)

Valve opening	10°	20°	30°	40°	50°	60°	70°
Pressure recovery coefficient (FL)	0.85	0.80	0.78	0.76	0.73	0.71	0.70
Cavitation coefficient (Kc)	0.55	0.50	0.47	0.45	0.40	0.37	0.32

# 507V

## 507V Applicable pipe list in case of **A**

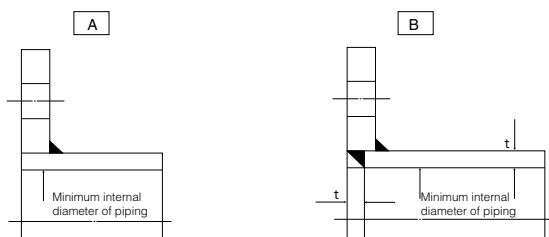
Nominal size		SGP	STPY	Sch20	Sch40	Sch10S	Sch20S	Minimum internal diameters of piping (mm)
mm	inch							
50	2	○	—	○	○	○	○	36
80	3	○	—	○	○	○	○	71
100	4	○	—	○	○	○	○	98
150	6	○	—	○	○	○	○	148
200	8	○	—	○	○	○	○	199
250	10	○	—	○	○	○	○	241
300	12	○	—	○	○	○	○	293
350	14	○	○	○	○	—	—	321
400	16	○	○	○	○	—	—	367

## 507V Applicable pipe list in case of **B**

Nominal size		SGP	STPY	Sch20	Sch40	Sch10S	Sch20S
mm	inch						
50	2	○	—	○	○	○	○
80	3	○	—	○	○	○	○
100	4	○	—	○	○	○	○
150	6	○	—	○	○	○	○
200	8	○	—	○	○	○	○
250	10	○	—	○	○	○	○
300	12	○	—	○	○	○	○
350	14	○	○	○	○	—	—
400	16	○	○	○	○	—	—

Remark1: ○=Applicable ×=Not applicable

Remark2: Butterfly valves are inserted into a pipe that was fitted with the disc when fully open.  
 In cases where you are using a pipe or flange that is less than the minimum inner pipe diameter, use is still possible if means are taken such as inserting a spacer between the valve and flange.  
 For details, please consult us.



### 507V Flange accommodation

Nominal size		JIS			ASME		BS4504 PN10	DIN NP10
mm	inch	10K	16K	20K	class 150	class 300		
50	2	○	D	D	○	D	○	○
80	3	D	D	D	○	D	D	D
100	4	D	D	D	D	D	D	D
150	6	D	D	D	D	D	D	D
200	8	D	D	D	D	D	D	D
250	10	D	×	×	D	×	D	D
300	12	D	×	×	D	×	D	D
350	14	D	×	×	D	×	D	D
400	16	D	×	×	D	×	D	D

- : Can be used without flange drilling.  
 D : With flange drilling  
 × : Not applicable

### 507V Piping bolt and nut sizes

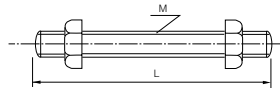
Nominal size		JIS 10K	JIS 20K	ASME Class 150	ASME Class 300
mm	inch	Long bolts and nuts		Long bolts and nuts	
50	2	4-M16×130	8-M16×130	4-U 5/8×140	8-U 5/8×140
80	3	8-M16×130	8-M20×170	4-U 5/8×150	8-U 3/4×175
100	4	8-M16×130	8-M20×170	8-U 5/8×150	8-U 3/4×175
150	6	8-M20×170	12-M22×190	8-U 3/4×175	12-U 3/4×190
200	8	12-M20×170	12-M22×210	8-U 3/4×190	12-U 7/8×230
250	10	12-M22×210	—	12-U 7/8×230	—
300	12	16-M22×210	—	12-U 7/8×230	—
350	14	16-M22×210	—	12-U 1 ×260	—
400	16	16-M24×240	—	16-U 1 ×260	—

Material Long bolt: SNB7  
 Nut: S45C

Example

Long bolts: 12 - M22 × 185  
 |        |        |  
 N        M        L

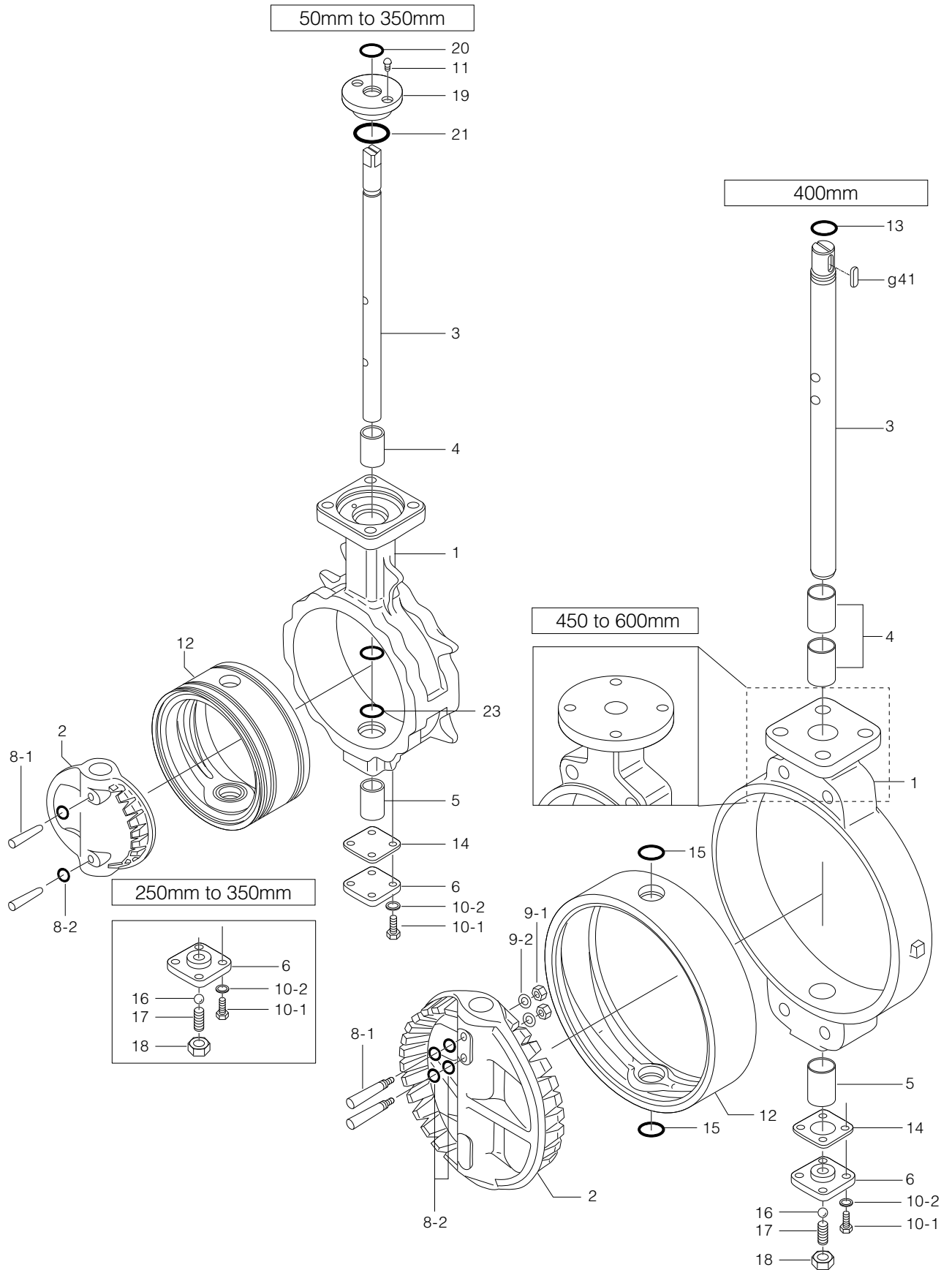
Long bolts and nuts (full thread)





# 508V

## 508V Expanded view of components



## 508V Parts list

### ■ 508V Parts list (50mm to 350mm)

No.	Description	Q'ty	Remarks
1	Body	1	
2	Disc	1	
3	Stem	1	
4	Bearing	1	50mm to 250mm
		2	300mm, 350mm
5	Bearing	1	
6	Bottom cover	1	
★ 8-1	Taper pin	2	
★ 8-2	O-ring	4	Only 250mm to 350mm
10-1	Hexagon bolt	4	
10-2	Spring washer	4	
11	Machine screw	2	50mm to 200mm
		4	250mm to 350mm
★ 12	Seat ring	1	
★ 14	Gasket	1	
16	Ball	1	Only 250mm to 300mm
17	Hollow bolt	1	Only 250mm to 300mm
18	Lock nut	1	Only 250mm to 300mm
19	Dust seal	1	
★ 20	O-ring	1	
★ 21	O-ring	1	
★ 23	O-ring	2	

### ■ 508V Parts list (400mm to 600mm)

No.	Description	Q'ty	Remarks
1	Body	1	
2	Disc	1	
3	Stem	1	
4	Bearing	2	400mm, 500mm
		3	450mm, 600mm
5	Bearing	1	400mm
		2	450mm to 600mm
6	Bottom cover	1	
★ 8-1	Taper pin	2	
★ 8-2	O-ring	4	
★ 9-1	Hexagon bolt	2	
★ 9-2	Spring washer	2	
10-1	Hexagon bolt	4	
10-2	Spring washer	4	
★ 12	Seat ring	1	
★ 13	O-ring	1	
★ 14	Gasket	1	
★ 15	O-ring	2	
16	Ball	1	
17	Hollow bolt	1	
18	Lock nut	1	
g41	Key	1	

Remark: The ★ indicates recommended spare parts. They are supplied as "Seat ring set".

## 508V Actuator Selection Chart

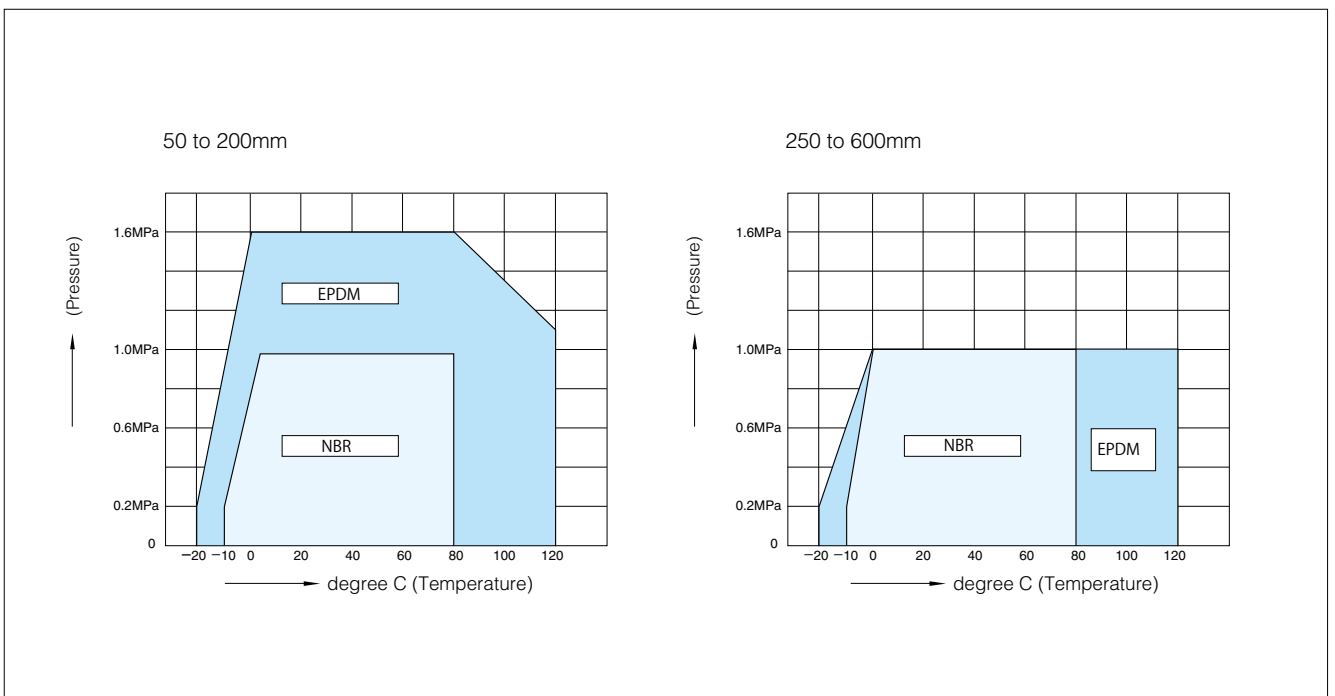
### 508V

Model	Category	Size (mm / inch)											
		50	80	100	150	200	250	300	350	400	450	500	600
		2	3	4	6	8	10	12	14	16	18	20	24
2U,2S	Standard	2U-0	2U-1	2U-2	2U-3	2U-4	2U-5	MGH-3	MGH-4				
7E,3A	Standard	T35	T85	T200	T380	T750	TGA-125	TGA-140	TGA-160	TGA-200			
7G,7F 3U,3K	Standard	T85S	T200S	T380S	T750S	TG-10S	TG-12S	TG-14S	TG-20S				
4I	ON-OFF Control	4I-0	4I-1	4I-2.5	4I-3		4I-4						
4J,4L	Standard	SRJ-010		SRJ-020	SRJ-060	LTKD-01 0.2kW/ DGH-2	LTKD-01 0.2kW/ MGH-3	LTKD-01 0.4kW/ MGH-3	LTKD-02 0.75kW/ MGH-4	LTKD-05 0.75kW/ MGH-5			
6X,6W	Standard	280H		400H									

Remark: In case of 350mm type with accessories below for control type 4I-4 should be selected.

- Micom unit
- Servo unit
- Speed control unit
- Potentiometer

## 508V Pressure-Temperature Rating



### 508V Allowable differential pressure for 6X and 6W

(kPa)

Nominal size		Valve opening							
mm	inch	0°	10°	20°	30°	40°	50°	60°	70°
50	2	1600	685	334	148	86	59	45	40
80	3	1400	694	475	308	176	116	69	47
100	4	800	765	575	315	204	133	69	37
150	6	1600	783	546	360	219	152	90	44
200	8	1600	676	453	287	178	124	79	44

### 508V Allowable differential pressure on stem

(kPa)

Nominal size		Valve opening							
mm	inch	0°	10°	20°	30°	40°	50°	60°	70°
50	2	1600	685	334	148	86	59	45	40
80	3	1600	694	475	308	176	116	69	47
100	4	1600	765	575	315	204	133	69	37
150	6	1600	783	546	360	219	152	90	44
200	8	1600	676	453	287	178	124	79	44
250	10	1000	562	233	149	84	58	37	21
300	12	1000	220	232	149	84	58	37	21
350	14	1000	367	222	116	65	45	29	16
400	16	1000	209	118	58	52	46	33	25
450	18	1000	223	197	115	56	48	33	26
500	20	1000	162	143	97	55	44	30	23
600	24	1000	246	171	110	54	49	41	27

The above is based on the result at our test plant. The test was conducted with fresh water at ambient temperature. Therefore, please use the data for reference only. Consult us if you have a question or doubt.

### 508V Maximum velocity

Fresh water	Short period	10m/s
	Continuous	7m/s
Sea water	Short period	10m/s
	Continuous	5m/s
Air (ambient temp.)	Short period	80m/s
	Continuous	30m/s

The maximum velocity shown is estimated as an average in the fully open state.

Remark: "Short period" means a few minutes creating high velocity until the disc angle reaches the designated position.

# 508V

508V Bare shaft (01: 50mm to 350mm, 02: 400mm to 600mm)

## 508V-01 (50mm to 350mm) / 508V-02 (400mm)

Nominal size		Dimension (mm)													Approx. Mass (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	a <sub>1</sub>	a <sub>2</sub>	$\square S_1$	$\phi d_2$	b	t <sub>2</sub>	t	Flanges	
50	2	48	101	43	76	142	22	10.5	8	10	—	—	14	F07	2.5
80	3	75	131	46	95	158	23	11.5	12	14	—	—	14	F07	4.0
100	4	96	156	52	110	169	23	11.5	12	14	—	—	14	F07	5.3
150	6	143	217	56	160	202	28	16.5	14	18	—	—	14	F10	10.8
200	8	188	268	60	182	227	30	20	18	22	—	—	14	F10	15
250	10	248	322	68	255	280	35	30	24	28	—	—	14	F10	29
300	12	296	375	78	284	312	35	30	24	32	—	—	16	F12	42
350	14	332	420	92	320	360	35	30	24	32	—	—	16	F12	62
400	16	390	477	102	343	380	65	59	—	46	14	3.5	20	F14	112

### Flange dimensions

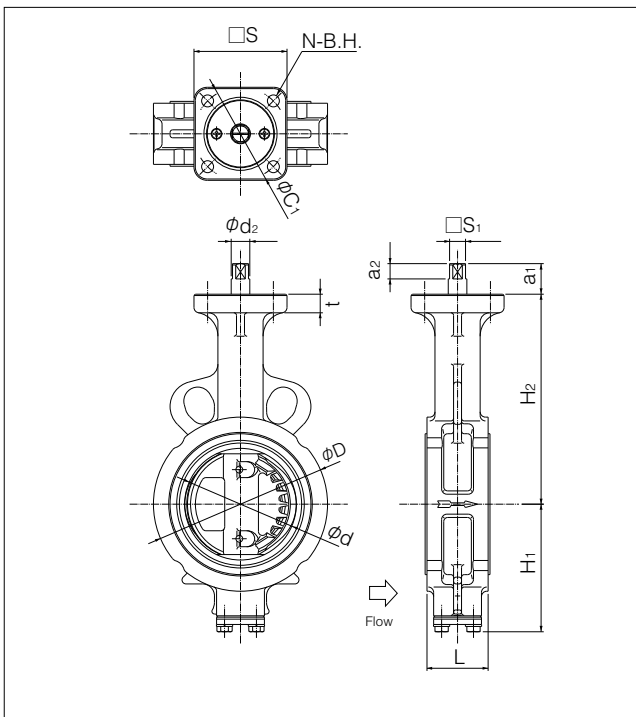
Flanges	$\square S$	$\phi C_1$	N	B.H.
F07	70	70	4	9
F10	102	102	4	11
F12	125	125	4	13
F14	140	140	4	19
F16	165	165	4	23

Stem design
01: Square
02: Round with key

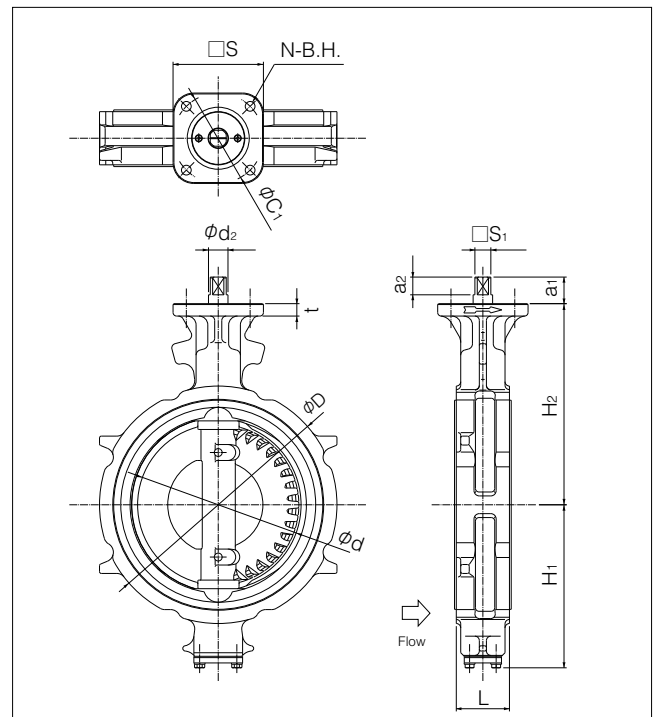
## 508V-02 (450mm to 600mm)

Nominal size		Dimension (mm)															Approx. Mass (kg)	
mm	inch	$\phi d$	$\phi D$		L	H <sub>1</sub>	H <sub>2</sub>	a <sub>1</sub>	a <sub>2</sub>	$\phi d_2$	b	t <sub>2</sub>	t	D <sub>1</sub>	C <sub>1</sub>	N		B.H.
			JIS10K	JIS16K														
450	18	439	532	532	114	379	420	60	53	47	12	3.5	20	200	170	4	19	143
500	20	490	610	610	127	422	450	60	53	47	12	3.5	20	200	170	4	19	196
600	24	583	826	720	154	494	530	75	65	65	18	6	25	260	220	4	23	333 (318)

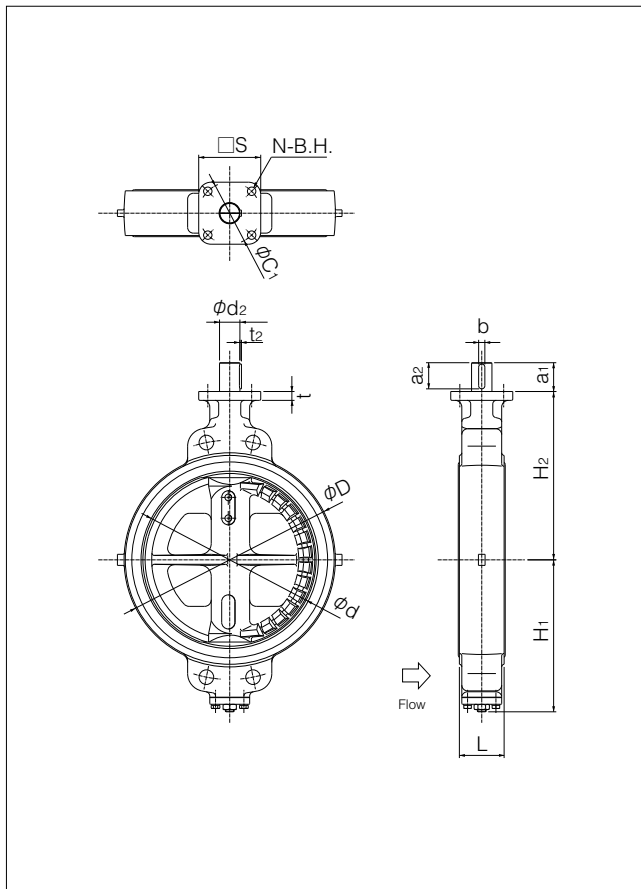
### 508V 50mm, 80mm



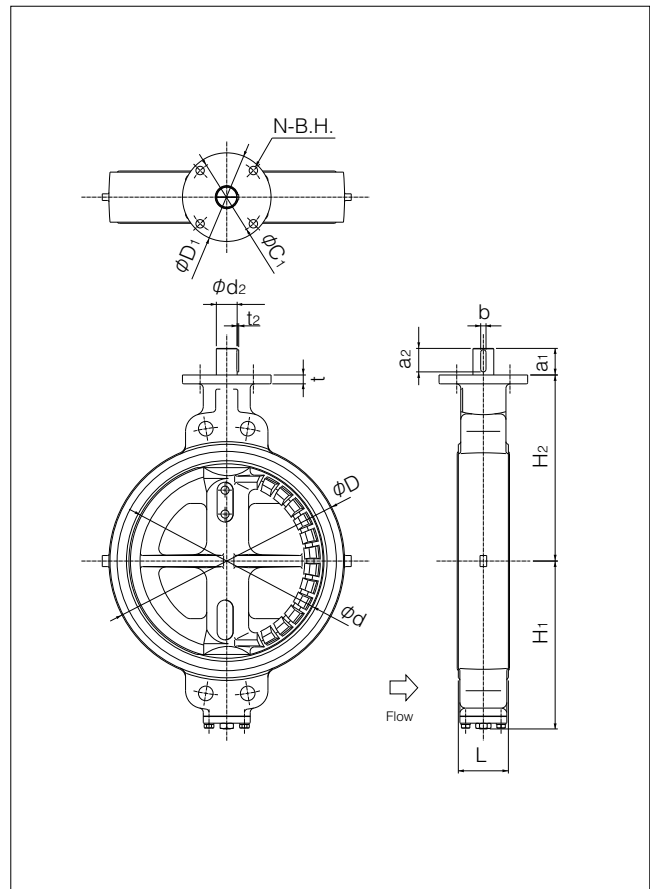
### 508V 100mm to 350mm



■508V 400mm

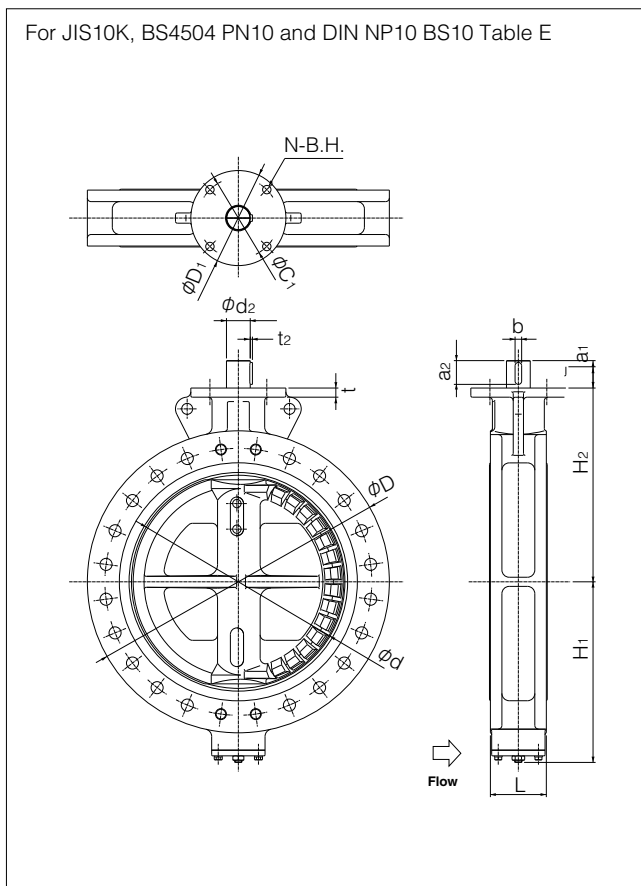


■508V 450mm, 500mm



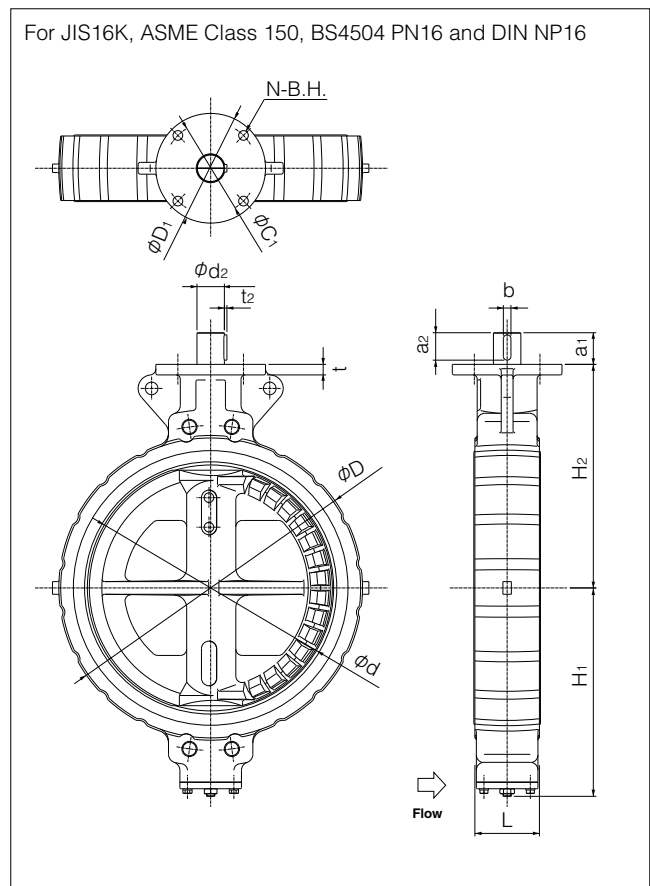
■508V 600mm

For JIS10K, BS4504 PN10 and DIN NP10 BS10 Table E



■508V 600mm

For JIS16K, ASME Class 150, BS4504 PN16 and DIN NP16



# 508V

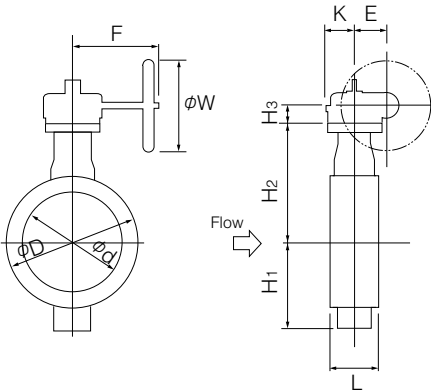
## Worm gear type 508V-2U (50mm to 400mm) / 508V-2S (450mm to 600mm)

Nominal size		Dimension (mm)										Gear type	Approx. Mass (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	E	K	F	$\phi W$		
50	2	48	101	43	76	142	29.5	36	46	160	100	2U-0	4.9
80	3	75	131	46	95	158	29.5	36	46	160	100	2U-1	6.4
100	4	96	156	52	110	169	29.5	36	46	160	100	2U-1	7.7
150	6	143	217	56	160	202	34.5	44	53	173.5	160	2U-2	15.1
200	8	188	268	60	182	227	41.5	67	75	198	200	2U-3	22.8
250	10	248	322	68	255	280	41.5	67	75	198	200	2U-3	37
300	12	296	375	78	284	312	48	87.5	90	222.5	200	2U-4	57
350	14	332	420	92	320	360	48	87.5	90	222.5	200	2U-4	77
400	16	390	477	102	343	380	50	90	105	266	280	2U-5	126
450	18	439	532	114	379	420	55	117	164	335	355	MGH-3	178
500	20	490	610	127	422	450	55	117	164	335	355	MGH-3	230
600	24	583	826 (720)	154	494	530	65	140	198	400	450	MGH-4	393 (363)

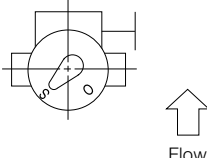
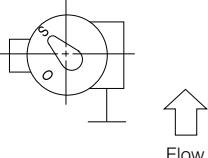
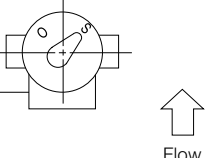
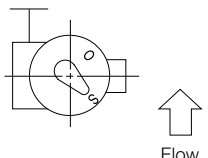
※A handle lock is attached for manual gear.

※( ) shows the data for JIS 16K 600mm.

### 508V-2U/2S



### 2U/2S Installation direction

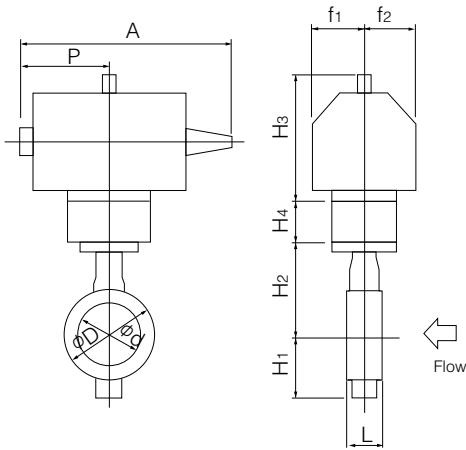
			
2UA/2SA	2UB/2SB	2UC/2SC	2UD/2SD

## Double-acting pneumatic cylinder type 508V-7E (50mm to 300mm)

Nominal size		Dimension (mm)											Cylinder type	Approx. Mass (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	H <sub>4</sub>	A	P	f <sub>1</sub>	f <sub>2</sub>		
50	2	48	101	43	76	142	125	—	274	116	57	29	T35	5
80	3	75	131	46	95	158	168	—	325	142	75	47	T85	9
100	4	96	156	52	110	169	168	—	325	142	75	47	T85	10
150	6	143	217	56	160	202	203	—	434	176	79	57	T200	19
200	8	188	268	60	182	227	231	—	511	214	91	69	T380	29
250	10	248	322	68	255	280	269	—	668	270	118	85	T750	54
300	12	296	375	78	284	312	269	—	668	270	118	85	T750	67

● A free angle adjuster comes with the cylinder.

### 508V-7E



### 7E Installation direction

<p>Retainer side</p> <p>Air port side</p> <p>Stem side</p> <p><b>7EA</b></p>	<p>Retainer side</p> <p>Air port side</p> <p>Stem side</p> <p><b>7EB</b></p>	<p>Retainer side</p> <p>Air port side</p> <p>Stem side</p> <p><b>7EC</b></p>	<p>Retainer side</p> <p>Air port side</p> <p>Stem side</p> <p><b>7ED</b></p>
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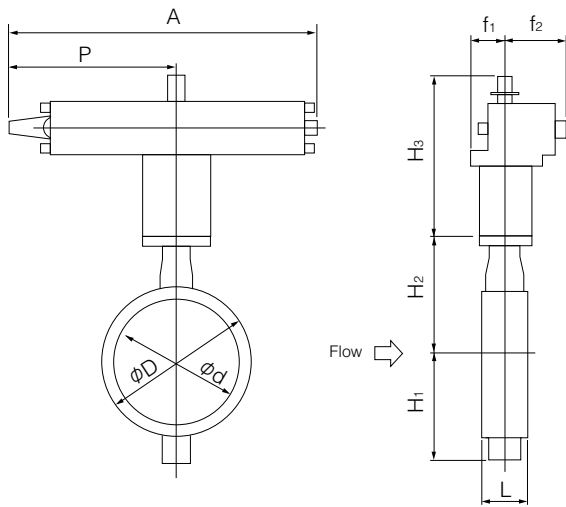
# 508V

## Double-acting pneumatic cylinder type 508V-3A (350mm to 600mm)

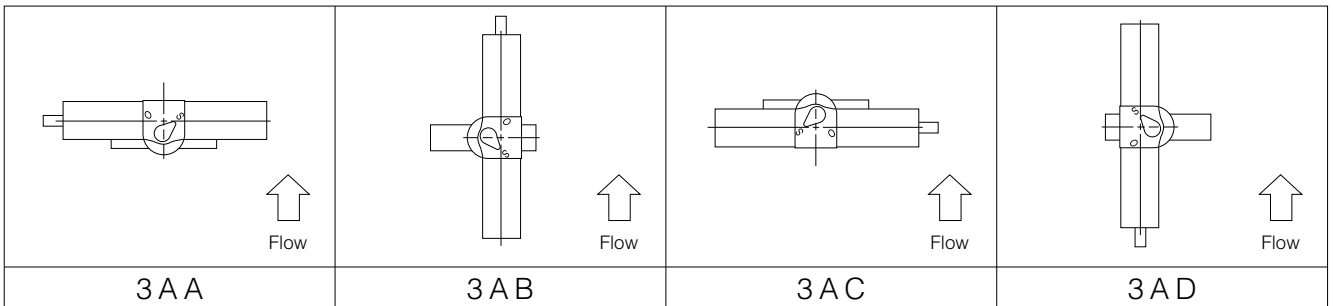
Nominal size		Dimension (mm)										Cylinder type	Approx. Mass (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	f <sub>1</sub>	f <sub>2</sub>		
350	14	332	420	92	320	360	359	868	487	100	164	TGA-125	112
400	16	390	477	102	343	380	359	868	487	100	164	TGA-125	156
450	18	439	532	114	379	420	407	966	534	100	180	TGA-140	201
500	20	490	610	127	422	450	435	1092	609	130	202	TGA-160	299
600	24	583	826(720)	154	494	530	570	1349	740	160	253	TGA-200	552(522)

Remark: Value in brackets indicates 3Q (air to close).  
 ● A free angle adjuster comes with the pneumatic cylinder.

### 508V-3A



### 3A Installation direction



Single-acting pneumatic cylinder type 508V-7G (Air to open: 50mm TO 150mm) / 302A-7F (Air to close: 50mm to 150mm)

■ 508V-7G

Nominal size		Dimension (mm)										Cylinder type	Approx. Mass (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	f <sub>1</sub>	f <sub>2</sub>		
50	2	48	101	43	76	142	168	406	183	75	47	T85S	9
80	3	75	131	46	95	158	203	534	226	79	57	T200S	15
100	4	96	156	52	110	169	231	635	276	91	69	T380S	25
150	6	143	217	56	160	202	269	848	360	118	85	T750S	44

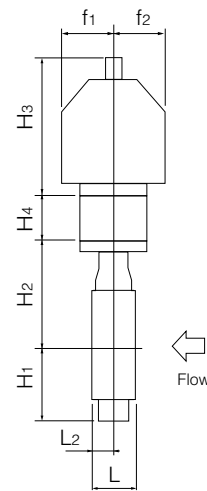
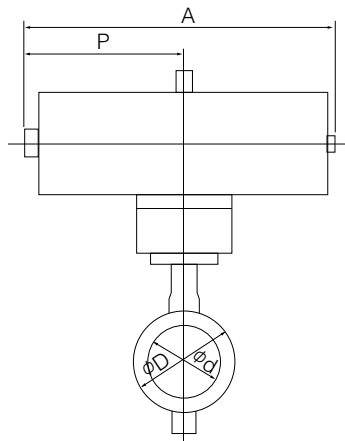
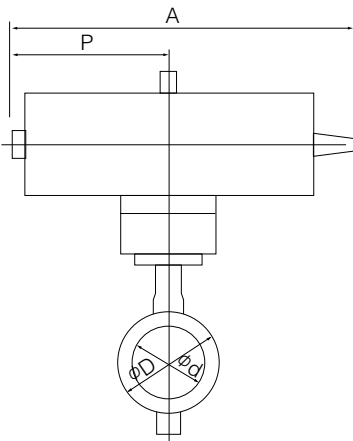
■ 508V-7F

Nominal size		Dimension (mm)											Cylinder type	Approx. Mass (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	H <sub>4</sub>	A	P	f <sub>1</sub>	f <sub>2</sub>		
50	2	48	101	43	76	142	168	66	439	183	75	47	T85S	9
80	3	75	131	46	95	158	203	84	539	226	79	57	T200S	15
100	4	96	156	52	110	169	231	92	665	276	91	69	T380S	25
150	6	143	217	56	160	202	269	104	853	360	118	85	T750S	44

● A free angle adjuster comes with the cylinder.

■ 508V-7G

■ 508V-7F



■ 7F Installation direction

<p>Retainer side</p> <p>Air port side</p> <p>Stem side</p> <p>7FA</p>	<p>Retainer side</p> <p>Air port side</p> <p>Stem side</p> <p>7FB</p>	<p>Retainer side</p> <p>Stem side</p> <p>Air port side</p> <p>7FC</p>	<p>Retainer side</p> <p>Stem side</p> <p>Air port side</p> <p>7FD</p>
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# 508V

Single-acting pneumatic cylinder type 508V-3U (Air to open: 200mm to 600mm) / 508V-3K (Air to close: 200mm to 600mm)

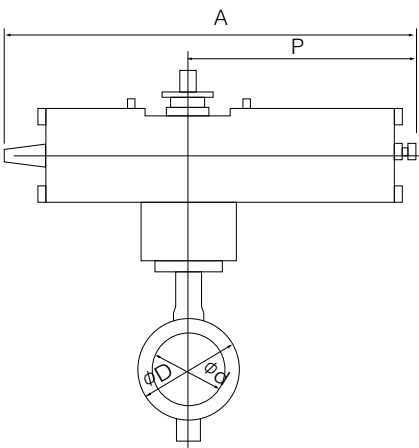
Nominal size		Dimension (mm)										Cylinder type	Approx. Mass (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	f <sub>1</sub>	f <sub>2</sub>		
200	8	188	268	60	182	227	307	1030	670 (585)	70	165	TG-10S	66
250	10	248	322	68	255	280	307	1180	820 (720)	94	206	TG-12S	125
300	12	296	375	78	284	312	307	1180	820 (720)	94	206	TG-12S	143
350	14	332	420	92	320	360	340	1355	965 (865)	131	257	TG-14S	259
400	16	390	477	102	343	380	340	1355	965 (865)	131	257	TG-14S	313
450	18	439	532	114	379	420	474	1790	1230 (1095)	164	348	TG-20S	562
500	20	490	610	127	422	450	474	1790	1230 (1095)	164	348	TG-20S	614
600	24	583	826[720]	154	494	530	474	1790	1230 (1095)	164	348	TG-20S	751[720]

Remark: Value in brackets indicates 3Q (air to close).

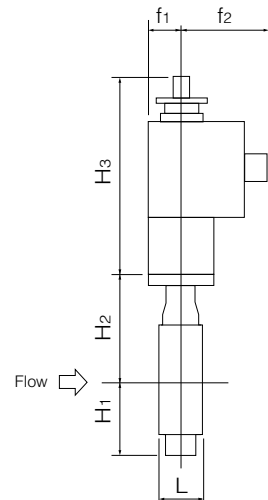
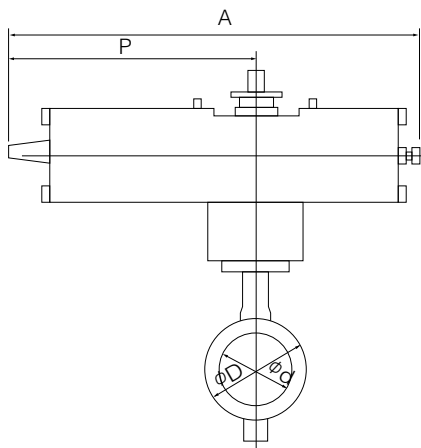
※ Brackets indicates the data for JIS 16K 600mm.

● A free angle adjuster comes with the pneumatic cylinder.

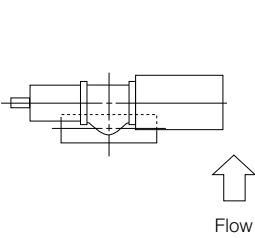
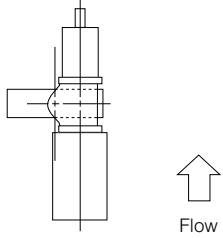
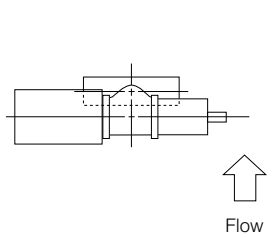
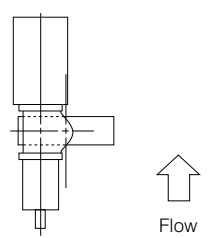
## 508V-3K



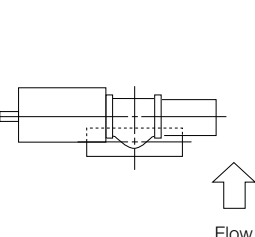
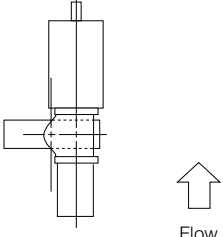
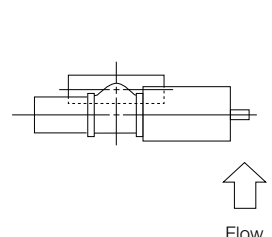
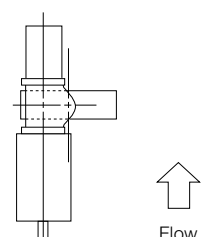
## 508V-3U



## 3K Installation direction

 3 K A	 3 K B	 3 K C	 3 K D
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## 3U Installation direction

 3 U A	 3 U B	 3 U C	 3 U D
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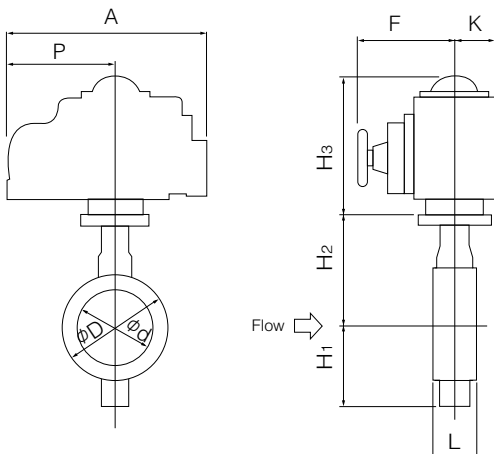
## Single phase electric motor type 508V-4 I (50mm to 400mm)

Nominal size		Dimension (mm)										Motor type	Approx. Mass (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	F	K		
50	2	48	101	43	76	142	176	202	100	85	54	4 I-0	6.7
80	3	75	131	46	95	158	176	202	100	85	54	4 I-0	8.2
100	4	96	156	52	110	169	191	252	138	126	65	4 I-1	11.7
150	6	143	217	56	160	202	224	310	167	154	85	4 I-2.5	23.6
200	8	188	268	60	182	227	224	310	167	154	85	4 I-2.5	28.6
250	10	248	322	68	255	280	255	388	223	246	136	4 I-3	55
300	12	296	375	78	284	312	255	388	223	246	136	4 I-3	68
350	14	332	420	92	320	360	255	388	223	246	136	4 I-3	81
							255	388	223	246	136	4 I-4	91
400	16	390	477	102	343	380	255	388	223	246	136	4 I-4	131

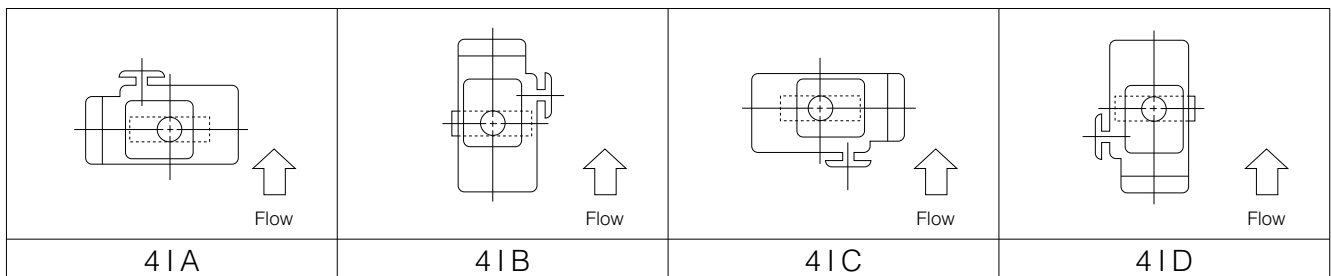
Remark: For 350mm type with accessories below for control type 4I-4 should be selected.

- Micom unit
- Servo unit
- Speed control unit
- Potentiometer

### ■ 508V-4 I



### ■ 4I Installation direction



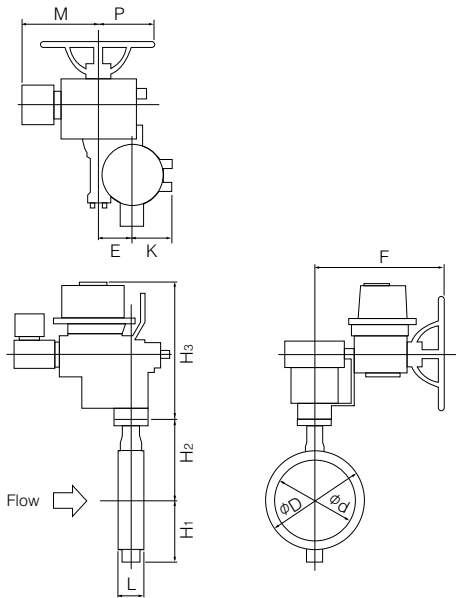
# 508V

## Three phase motor actuator type 508V-4L (300mm to 600mm)

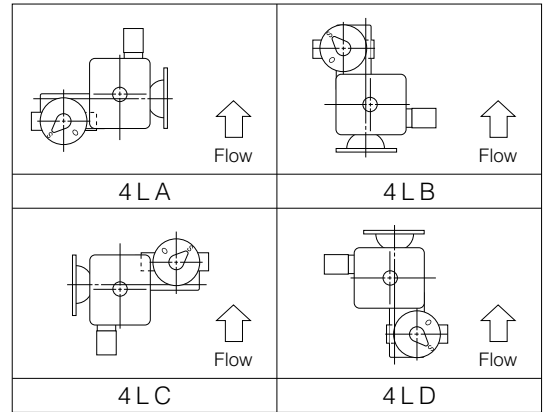
Nominal size		Dimension (mm)											Motor type	Approx. Mass (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	E	K	F	M	P		
300	12	296	375	78	284	312	415	85	126	498	364	230	LTKD-01 0.2kW/ DGH-2	117
350	14	332	420	92	320	360	428	117	164	533	364	230	LTKD-01 0.2kW/ MGH-3	201
400	16	390	477	102	343	380	458	117	164	533	357	230	LTKD-01 0.4kW/ MGH-3	226
450	18	439	532	114	379	420	538	140	198	594	375	230	LTKD-02 0.75kW/ MGH-4	310
500	20	490	610	127	422	450	538	140	198	594	375	230	LTKD-02 0.75kW/ MGH-4	363
600	24	583	826(720)	154	494	530	604	210	293	748	415	360	LTKD-05 0.75kW/ MGH-5	660(630)

※Brackets indicate the data for JIS 16K 600mm.

### 508V-4L



### 4L Installation direction

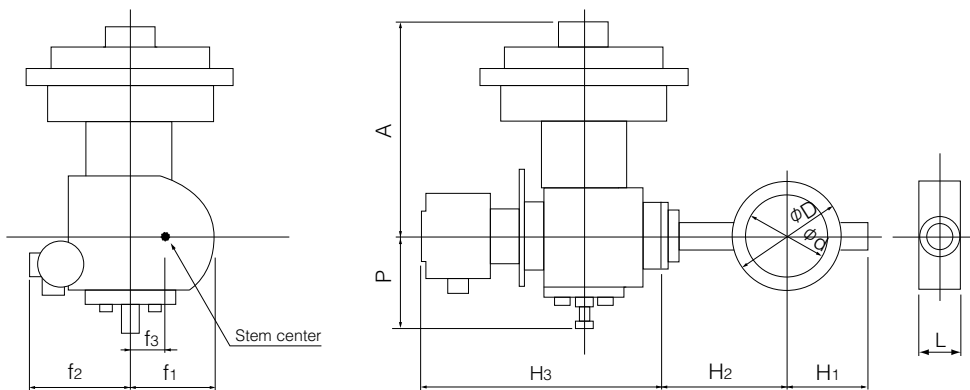


**508V-6X (Air to open: 50mm to 200mm) / 508V-6W (Air to close: 50mm to 200mm) with diaphragm actuator**

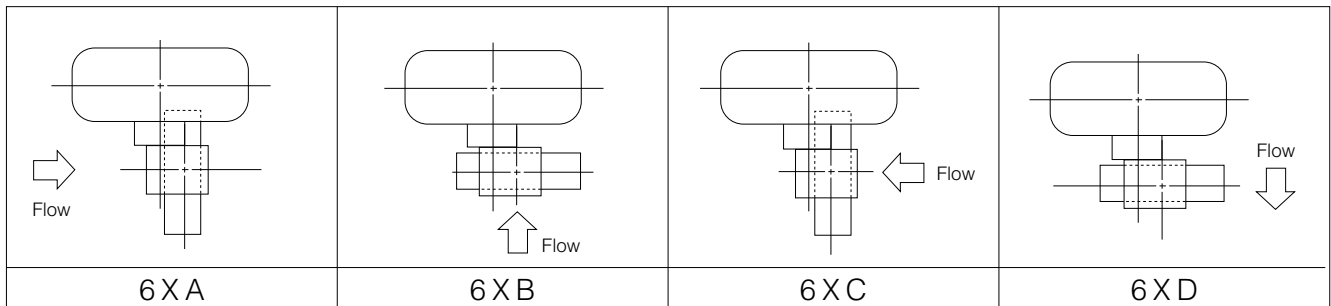
Nominal size		Dimension (mm)											Diaphragm type	Approx. Mass (kg)
mm	inch	$\phi d$	$\phi D$	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	f <sub>1</sub>	f <sub>2</sub>	f <sub>3</sub>		
50	2	48	101	43	76	142	333	310	126	124	164	36	280H-M	37
80	3	75	131	46	95	158	333	310	126	124	164	36	280H-M	38
100	4	96	156	52	110	169	333	310	126	124	164	36	280H-M	39
150	6	143	217	56	160	202	381	440	185	124	164	50	400HP	75
200	8	188	268	60	182	227	381	440	185	124	164	50	400HP	79

Remarks: H<sub>3</sub> shows the dimension when the positioner (TCE2000) is installed.  
The H<sub>3</sub> dimension will change depending on the positioner type.

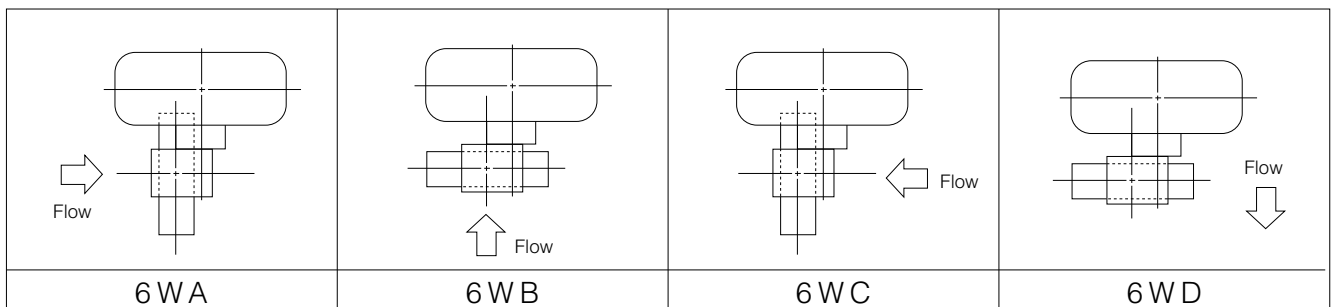
**508V-6X/6W**



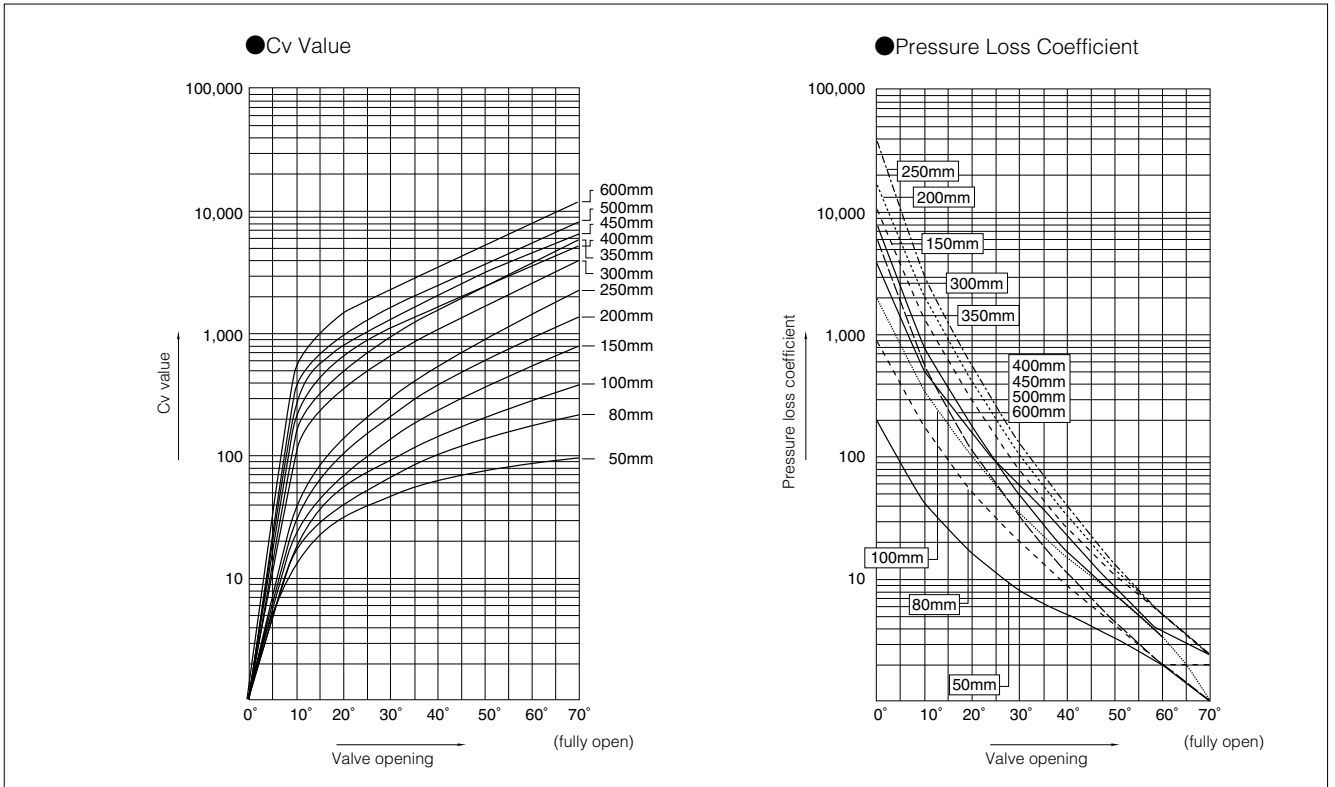
**6X Installation direction**



**6W Installation direction**



## 508V Cv Value/Pressure Loss Coefficient



## 508V Cv Value

Nominal size		Valve opening						
mm	inch	10°	20°	30°	40°	50°	60°	70°
50	2	16	32	48	63	76	87	94
80	3	19	41	68	101	139	180	218
100	4	24	55	94	143	203	281	383
150	6	26	72	140	239	375	555	790
200	8	38	105	215	380	600	920	1380
250	10	42	145	300	550	910	1480	2260
300	12	118	350	670	1120	1700	2580	4000
350	14	160	500	980	1600	2450	3800	5800
400	16	249	670	1080	1650	2510	3650	5230
450	18	316	848	1370	2090	3180	4620	6620
500	20	390	1050	1690	2590	3920	5710	8170
600	24	561	1500	2430	3720	5640	8220	11800

### 508V Pressure Loss Coefficient

Nominal size		Valve opening						
mm	inch	10°	20°	30°	40°	50°	60°	70°
50	2	65	16	7	4	3	2	2
80	3	223	48	17	8	4	2	2
100	4	420	78	27	11	6	3	2
150	6	1640	219	57	19	8	4	2
200	8	2360	310	74	24	9	4	2
250	10	4640	390	91	27	10	4	2
300	12	1210	138	38	13	6	3	1
350	14	1030	106	28	10	4	2	1
400	16	727	100	39	17	7	3	2
450	18	723	100	38	17	7	3	2
500	20	733	101	39	17	7	3	2
600	24	741	104	39	17	7	3	2

### 508V Pressure Recovery Coefficient (FL) and Cavitation Coefficient (Kc)

Valve opening	10°	20°	30°	40°	50°	60°	70°
Pressure recovery coefficient (FL)	0.85	0.80	0.78	0.76	0.73	0.71	0.70
Cavitation coefficient (Kc)	0.55	0.50	0.47	0.45	0.40	0.37	0.32



# 508V

## 508V Applicable pipe list in case of **A**

Nominal size		SGP	STPY	Sch20	Sch40	Sch10S	Sch20S	Minimum internal diameters of piping (mm)
mm	inch							
50	2	○	—	○	○	○	○	34
80	3	○	—	○	○	○	○	70
100	4	○	—	○	○	○	○	91
150	6	○	—	○	○	○	○	144
200	8	○	—	○	○	○	○	194
250	10	○	—	○	○	○	○	246
300	12	○	—	○	○	○	○	294
350	14	○	○	○	○	—	—	327
400	16	○	○	○	×	—	—	387
450	18	○	○	○	×	—	—	434
500	20	○	○	○	×	—	—	484
600	24	—	○	○	×	—	—	581

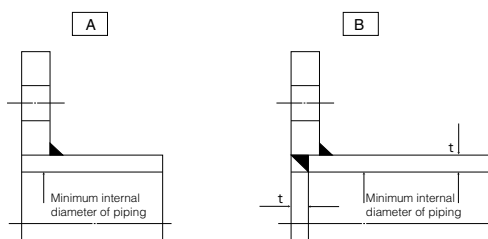
## 508V Applicable pipe list in case of **B**

Nominal size		SGP	STPY	Sch20	Sch40	Sch10S	Sch20S
mm	inch						
50	2	○	—	○	○	○	○
80	3	○	—	○	○	○	○
100	4	○	—	○	○	○	○
150	6	○	—	○	○	○	○
200	8	○	—	○	○	○	○
250	10	○	—	○	○	○	○
300	12	○	—	○	○	○	○
350	14	○	○	○	○	—	—
400	16	○	○	○	○	—	—
450	18	○	○	○	○	—	—
500	20	○	○	○	○	—	—
600	24	—	○	○	○	—	—

Remark 1: ○=Applicable ×=Not applicable

Remark 2: Butterfly valves are inserted into a pipe that was fitted with the disc when fully open.

In cases where you are using a pipe or flange that is less than the minimum inner pipe diameter, use is still possible if means are taken such as inserting a spacer between the valve and flange. For details, please consult us.



## 508V Flange accommodation

Nominal size		JIS				ASME	BS4504		DIN		BS10
mm	inch	5K	10K	16K	20K	class 150	PN10	PN16	NP10	NP16	Table E
50	2	D	○	○	○	○	○	○	○	○	○
80	3	○	○	○	○	○	○	○	○	○	○
100	4	○	○	○	○	○	○	○	○	○	○
150	6	○	○	○	○	○	○	○	○	○	○
200	8	○	○	○	○	○	○	○	○	○	○
250	10	×	○	○	×	○	○	○	○	○	○
300	12	×	○	○	×	○	○	○	○	○	○
350	14	×	○	○	×	○	○	○	○	○	○
400	16	×	D	D	×	D	D	D	D	D	D
450	18	×	D	D	×	D	D	D	D	D	D
500	20	×	D	D	×	D	D	D	D	D	D
600	24	×	T	T	×	T	T	T	T	T	T

○ : Can be used without flange drilling.  
 D : With flange drilling  
 T : With flange tapping  
 × : Not applicable

## 508V Piping Bolt and Nut Sizes

Nominal size		JIS5K		JIS10K		JIS16K		ASME class150	
mm	inch	Long Bolts and Nuts	Setting Bolts	Long Bolts and Nuts	Setting Bolts	Long Bolts and Nuts	Setting Bolts	Long Bolts and Nuts	Setting Bolts
50	2	4-M12×105	—	4-M16×120	—	8-M16×125	—	4-U5/8-11UNC×130	—
80	3	4-M16×120	—	8-M16×125	—	8-M20×135	—	4-U5/8-11UNC×145	—
100	4	8-M16×130	—	8-M16×130	—	8-M20×150	—	8-U5/8-11UNC×150	—
150	6	8-M16×130	—	8-M20×155	—	12-M22×165	—	8-U3/4-10UNC×165	—
200	8	8-M20×150	—	12-M20×155	—	12-M22×170	—	8-U3/4-10UNC×180	—
250	10	—	—	12-M22×175	—	12-M24×190	—	12-U7/8-9UNC×195	—
300	12	—	—	16-M22×185	—	16-M24×210	—	12-U7/8-9UNC×210	—
350	14	—	—	16-M22×195	—	16-M30(P3)×225	—	12-U1-8UNC×240	—
400	16	—	—	16-M24×220	—	—	—	16-U1-8UNC×255	—
450	18	—	—	20-M24×230	—	—	—	16-U1 1/8-8UN×280	—
500	20	—	—	20-M24×250	—	—	—	20-U1 1/8-8UN×295	—
600	24	—	—	20-M30×290	8-M30×65	—	—	16-U1 1/4-8UN×340	8-U1 1/4-8UN×85

Remark: Bold and nut material: SS400/SS400 and SUS 304/SUS04.

Long bolt uses full threaded bolt.

Use thin hexagon nut. (Use heavy hexagon nut for ASME class 150.)

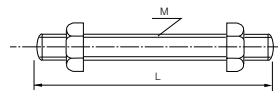
A unified screw should have 8 threads per inch if its nominal diameter exceeds 1 inch.

Example

Long bolts: 12 - M22 × 185  
                   |      |      |  
                   N      M      L

Setting bolts: 4 - M30 × 95  
 (Hexagon bolts) |      |      |  
                           N      M      L

Long bolts and nuts (full thread)



Setting bolts (Hexagon bolts)

