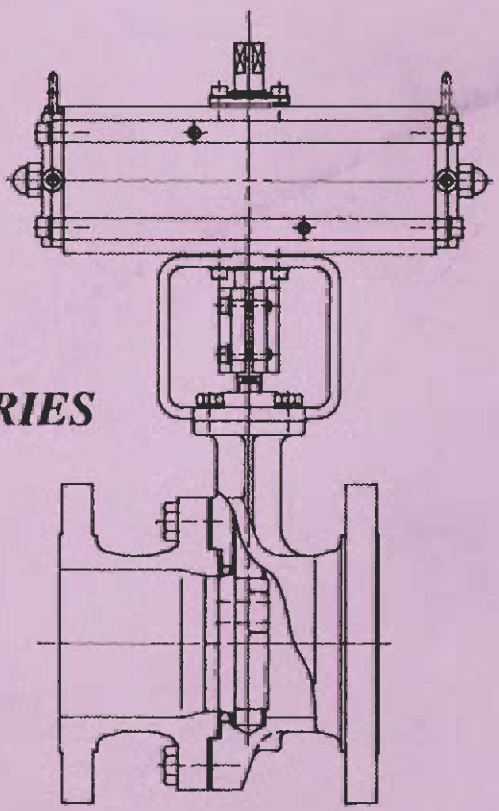
KOSO

STANDARD SPECIFICATION

PARA-SEAL



720E SERIES

KOSO

STANDARD SPECIFICATION

PARA-SEAL
HIGH PERFORMANCE BUTTERFLY VALVE
720E SERIES

GENERAL

This series is our latest high performance butterfly valves which has an eccentric disc.

It has a special seating mechanism, accordingly having high sealing performance and countrolability for a variety of liquid and gas services. On the other hand it has such features as compactness, light weight, free maintainance and wide manufacturing range including large size. It is one of the most economical valves.

STANDARD SPECIFICATION

Body

Type: Eccentric type

Size: 3″~24″(80~600mm)

Rating: JIS10K, ANSI (JPI) Class 150
JIS20K, ANSI (JPI) Class 300

Connection: Flanged (RF)

Face to Face dimension: See pages 18~29

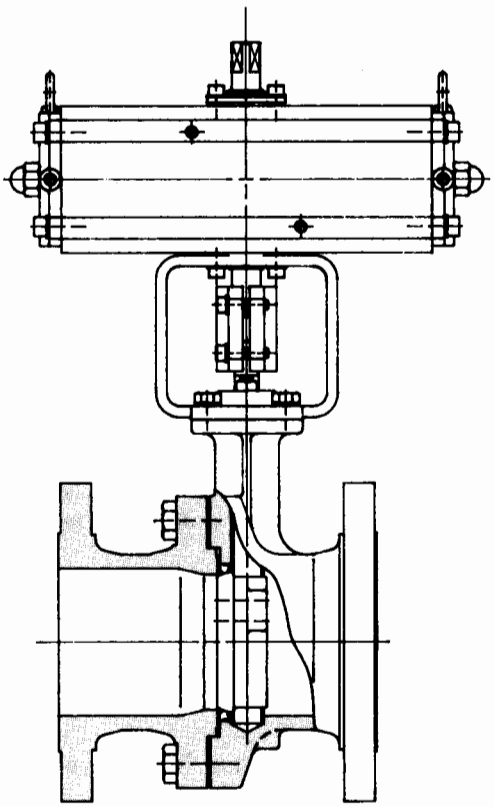
Materials: SCPH2 (WCB), SCS13A, SCS14A (CF8M)
As to the operating temp./press. for each material, see pages 2~4, Tables 1 & 3.

Bonnet: Standard bonnet (Casted with Body)
3″~6″ (80~150mm) ···· −45~500°C
8″~24″ (200~600mm) · −45~450°C
Long extension bonnet
3″~24″(80~600mm)····· −45°C and under.

Gland packing: Teflon Asbestos, Pillarfoil

Gasket: Vortex metal type

Painting color: Munsell N-6 (Epoxy resin group) is Standard. As for stainless steel body, no painting is standard.



Trim

Disc type: Tight close type

Characteristics: Modified EQ%

Material & Treatment: See pages 2~4, Table 1.
As to the temp./press. range vs disc/seal ring material/treatment, see page 5, Fig. 1.

Actuator

Standard specification: See page 2.

Performance

Rated Cv value: See page 7, Table 4.

Flow characteristics: See page 7, Fig. 5.

Rangeability: 90° opening (50: 1)
60° opening (25: 1)

Leakage: See pages 2~4, Table 1.

Allowable press. dorp: See pages 8~16, Table 5.

Dimensions: See pages 18~29.

Mounting form: See pages 17, Fig. 6.

Weight: See pages 17, Table 6.

Optional Special Specifications: See page 2.

Actuator Specifications

Model / specifications	Pneumatic Cylinder		Diaphragm	Solid State Electronic Actuator		Electric Motor
	6500RA, 6600RA		5200RA	3500RB	3600RA	3400RA
	Double Acting	Spring Return	Multi-Spring	DC Motor/Resolution 0.3%	AC Motor/Resolution 0.4%	AC Motor
Purpose	Modulation/On-Off		Modulation	Modulation		On-Off
Air Supply (Spring range) or Power Supply (Input signal)	4.0, 5.0kgf/cm²G	4.0(1.35~2.65)kgf/cm²G 5.0(1.70~3.30)kgf/cm²G	3.0(0.8~2.0)kgf/cm²G 3.4(0.8~2.0)kgf/cm²G 3.4(1.2~3.0)kgf/cm²G	AC100V 50/60Hz(DC4~20mA)		AC100V 50/60Hz Change-over contact
Piping/wiring Conn.	Rc⅛(for Cylinder size 60, 90), Rc¼, Rc⅜, Rc½		Rc¼	2-G½		2-G½
Opening angle	60 deg. or 90 deg.		60 deg.	60 deg. or 90 deg.		90 deg.
Action	Po. Signal increase: Valve Open or Shut.	DA : Air to Valve Shut. RA : Air to Valve Open.		DA: Signal increase-Valve Shut RA: Signal increase-Valve Open		Manual selection Valve Open, Shut or Opening Stop
Hysteresis	Less than 1.5 % of FS with positioner		Less than 1% of FS with positioner	Less than 0.5 % of FS	Less than 0.8% of FS	——
Linearity	Less than ±2 % of FS with positioner		Less than ±2% of FS with positioner	Less than ±1% of FS	Less than ±1% of FS	——
Ambient Temperature	−20~+60°C		−10~+70°C	−10~+55°C		−10~+55°C
Painting	Munsell N-6 (Epoxy Resin Group)			S type P4417 (Blue)		
Options	E/P-P/P positioner, Air set, Limit switch, Solenoid valve, Speed controller, Lock-up valve, Open or Shut stopper. Positon transmitter. Manual handle. Volume tank etc.			Resolution 0.1%, Split range, Space heater, Junction Box, Position transmiter, Manual handle, etc.	Overload unit, Space heater, Torque switch Junciton Box, Manual handle, etc.	Potentiometer, Micro switch, Space heater, etc.

Optional Special Specifications (addtional cost is required):

- Special testing
  Flow characteristics testing, Material certificate, Low temperature testing, Steam testing, Non-destructive testing, Radiographic testing.
- Oxygen clean.
- Sand/Dust proof.
- Cold area proof.
- Tropical area proof.
- No copper alloy
- Salty environment proof.
- Special piping & fitting
- vacuum service proof.
- SUS bolts/nuts for exposed parts.
- Non-standard painting.

Table 1 Body/Trim Material Combinations, Operating Temperature & Seat Leakage.

Table 1-1A Body Material: SCPH2 (A216-WCB)

Disc	Material	SCPH2 (A216-WCB)		
	Treatment	Chrome plated		
Stem	Material	SUS630		
	Treatment	Heart treatment		
Bearing	Material	SUS316		
	Treatment	Chrome plated		
Retainer	Material	SS400		
Seal ring	Type	FN	FV	CS
	Material	Reinforced Teflon MoS_2 filled	Reinforced Teflon MoS_2 filled	Reinforced Teflon Carbonfiber filled
	Back ring	NBR O-ring	VITON O-ring	SUS316
Operating Temp.(℃)		−5~+60	−5~+180	−5~+250
Seat Leakage		≲ ANSI Class VI		

Note 1) Seat material/treatment vs operating temp./press. range; See page 5, Fig. 1.

Table 1-1B Body Material: SCPH2 (A216-WCB)

Disc	Material	SCS13A				SCS13A		
	Treatment	Chrome plated				Stellite Seat surface		
Stem	Material	SUS630				SUS630		
	Treatment	Heat treatment				Heat treatment		
Bearing	Material	SUS316				SUS316		
	Treatment	Chrome plated				Chrome plated		
Retainer	Treatment	SUS304				SUS304		
Seal ring	Type	FN	FV	CS	M	M	H	HS
	Material	Reinforced Teflon MoS_2 filled	Reinforced Teflon MoS_2 filled	Reinforced Teflon Carbonfiber filled	SUS316	SUS316	SUS630 Heat treatment	SUS316 Stellite Seat surface
	Back ring	NBR O-ring	VITON O-ring	SUS316	—	—	—	—
Operating Temp.(℃)		−5～+60	−5～+180	−5～+250	−5～+400	−5～+400		
Seat Leakage		≦ ANSI Class VI			See Table 2	See Table 2		

Note 1) Seat material/treatment vs operating temp./press. range; See page 5, Fig. 1.

Table 1-2 Body Material: SCS13A

Disc	Material	SCS13A				SCS13A		
	Treatment	Chrome plated				Stellite Seat surface		
Stem	Material	SUS630				SUS630		
	Treatment	Heat treatment				Heat treatment		
Bearing	Material	SUS316				SUS316		
	Treatment	Chrome plated				Chrome plated		
Retainer	Material	SUS304				SUS304		
Seal ring	Type	FN	FV	CS	M	M	H	HS
	Material	Reinforced Teflon MoS_2 filled	Reinforced Teflon MoS_2 filled	Reinforced Teflon Carbonfiber filled	SUS316	SUS316	SUS630 Heat treatment	SUS316 Stellite Seat surface
	Back ring	NBR O-ring	VITONO-ring	SUS316	—	—	—	—
Operating Temp.(℃)		−45～+60	−10～+180	−45～+250	−45～+400	−45～+400		
Seat Leakage		≦ ANSI Class VI			See Table 2	See Table 2		

Note 1) Seat material/treatment vs operating temp./press. range; See page 5, Fig. 1.
2) When oxygen clean service is required, bearing material/treatment is SUS316/Teflon.

Table 1-3 Body Material: SCS14A (A351-CF8M)/Low Temp. (−45°C or less) See Table 1-4.

Disc	Material	SCS14A (A351-CF8M)				SCS14A (A351-CF8M)	
	Treatment	Chrome plated				Stellite Seat surface	
Stem	Material	SUS316				SUS316	
	Material	—				—	
Bearing	Material	SUS316				SUS316	
	Treatment	Heat treatment				Chrome plated	
Retainer	Material	SUS316				SUS316	
Seal ring	Type	FN	FV	CS	M	M	HS
	Material	Reinforced Teflon MoS_2 filled	Reinforced Teflon MoS_2 filled	Reinforced Teflon Carbonfiber filled	SUS316	SUS316	SUS316 Stellite Seat surface
	Back ring	NBR O-Ring	VITON O-ring	SUS316	—	—	—
Operating Temp. (℃)		−45～+60	−10～+180	−45～+250	−45～+500	−45～+500	
Seat Leakage		≦ ANSI Class VI			See Table 2	See Table 2	

Note 1) Seat material/treatment vs operating temp./press. range; See page 5, Fig. 1.
2) When oxygen clean service is required, bearing material/treatment is SUS316/Teflon.

Table 1-4 Body Material: SCS14A (A351-CF8M) Long Extention Type

Disc	Material	SCS14A (A351-CF8M)		SCS14A (A351-CF8M)	
	Treatment	Chrome plated		Stellite Seat surface	
Stem	Material	SUS316		SUS316	
	Treatment	—		—	
Bearing	Material	SUS316		SUS316	
	Treatment	Teflon		Teflon	
Retainer	Material	SUS316		SUS316	
Seal ring	Type	KS	M	M	HS
	Material	Kel-F	SUS316	SUS316	SUS316 Stellite Seat surface
	Back ring	SUS316	—	—	—
Operating Temp.(℃)		−196～+100	−196～+100	−196～+100	
Seat Leakage		≦ ANSI Class VI	See Table 2	See Table 2	

Note 1) Seat material/treatment vs operating temp./press. range; See page 5, Fig. 1.

Table 2 Metal Seal Ring Seat Leakage (Cv % against Rated Cv value for 90° disc opening)

Valve size \ Fluid temperature	Under 300°C	300～400°C	400～500°C
3"～ 6" (80 mm～150 mm)	0.0001% under	0.01% under	0.018% under
8"～10" (200 mm～250 mm)	0.00001% under	0.007% under	0.015% under
12"～18" (300 mm～450 mm)	0.00001% under	0.005% under	0.01% under
20" (500 mm) over	0.00001% under	0.001% under	0.005% under

Table 3 Body Materials Operating Pressure-Temperature Ratings.

Table 3-1 ANSI Unit: kgf/cm²G

Temp. (℃)	Class 150			Class 300		
	SCPH2 WCB	SCS13A	SCS14A CF-8M	SCPH2 WCB	SCS13A	SCS14A CF-8M
−196～38	—	19.4	19.4	—	50.6	50.8
− 5～38	20.0	19.4	19.4	52.1	50.6	50.6
50	19.6	18.8	18.8	51.1	48.7	49.0
100	18.0	16.0	16.5	47.3	41.7	43.0
150	16.1	14.2	15.1	46.1	37.0	39.3
200	14.3	12.8	14.0	44.7	33.4	36.4
250	12.3	11.9	12.3	42.5	31.1	34.1
300	10.4	10.4	10.4	39.5	29.7	32.2
350	8.6	8.6	8.6	37.7	28.7	31.0
375	7.5	7.5	7.5	37.2	28.3	30.3
400	6.6	6.6	6.6	35.2	28.0	29.7
425	—	5.7	5.7	—	27.7	29.3
450	—	4.8	4.8	—	27.4	28.7
475	—	3.8	3.8	—	27.1	27.9
500	—	2.9	2.9	—	26.6	27.3
525	—	1.9	1.9	—	22.4	26.3
550	—	1.3	1.3	—	22.2	25.5
575	—	1.3	1.3	—	20.5	24.6
600	—	1.3	1.3	—	17.0	21.8

Table 3-2 JIS Unit: kgf/cm²G

Temp. (℃)	10K	20K
	SCPH2	SCPH2
～120	14.0	34.0
～220	12.0	31.0
～300	10.0	29.0
～350	—	26.0
～400	—	23.0

Fig. 1 Seal Ring Operating Temperature-Pressure Limitation

(——— allowable fluid pressure at Valve Shut, — - - — allowable differential pressure at Modulation)

Fig. 1-1 FN, FVtype Soft seat

Disc treatment: Chrome plated
Seat leakage: ANSI Class VI

(Firesafe type)

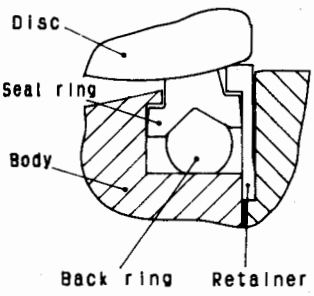


Fig. 1-1A FNtype Soft seat

Seal ring: Reinforced Teflon MoS2 filled
Back ring: NBR o-ring

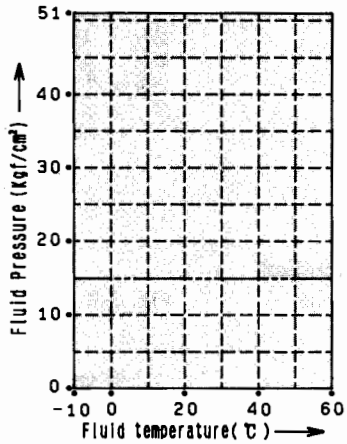


Fig. 1-1B FVtype Soft seat

Seal ring: Reinforced Teflon MoS2 filled
Back ring: VITON o-ring

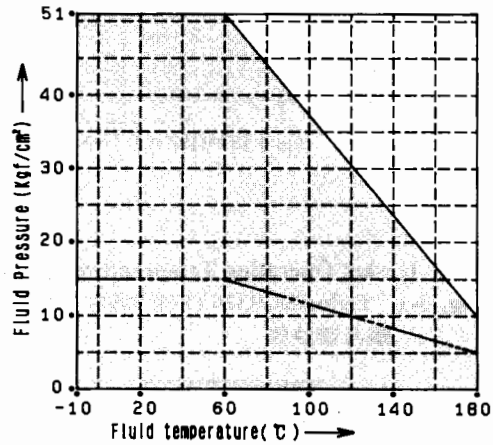


Fig. 1-2 CS, KStype Soft seat

Disc treatment: Chrome plated
Seat leakage: ANSI Class VI

(Firesafe type)

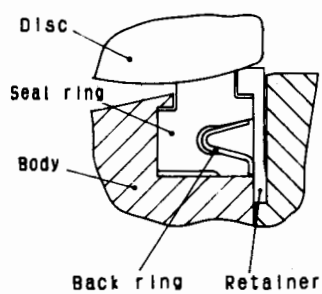


Fig. 1-2A CStype Soft seat

Seal ring: Reinforced Teflon Carbonfiber filled
Back ring: SUS316

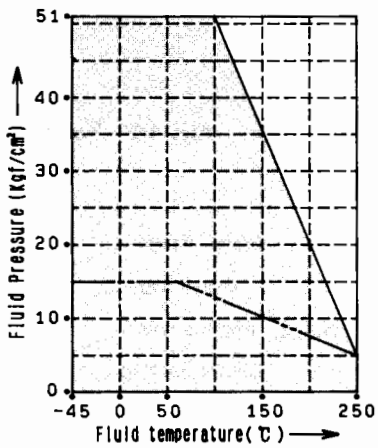
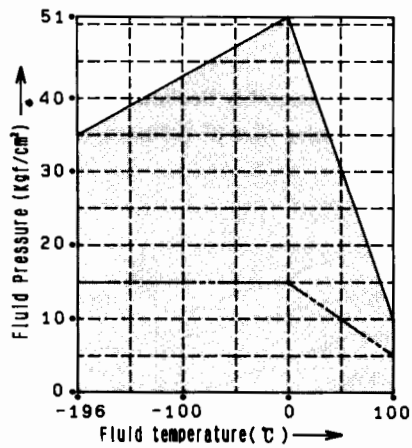


Fig. 1-2B KStype Soft seat

Seal ring: KelF
Back ring: SUS316



Disc treatment: Chrome plated or Stellite seat surface
Seat leakage: See page4, Table2

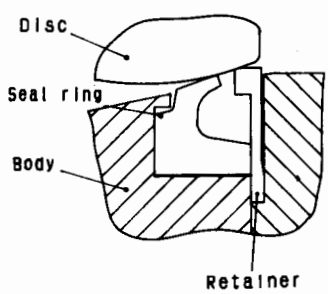


Fig. 1-3A Mtype

Seal ring: SUS316

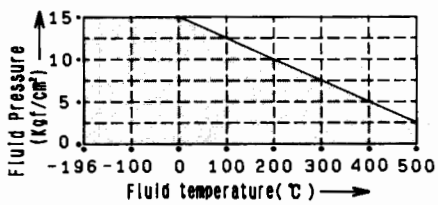


Fig. 1-3B Htype

Seal ring: SUS630

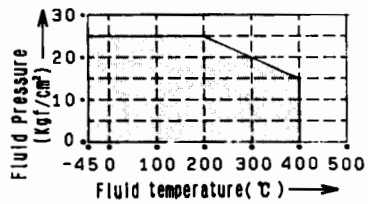


Fig. 1-3C HStype

Seal ring: SUS316
Stellite seat surface

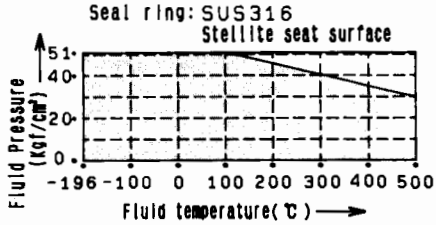


Fig. 2 Gland Packing Operating Temperature-Pressure Limitation

Fig. 2-1 Teflon Asbestos (P4513+P4513L) Oxydizing Fluid (P4513+P#2S)

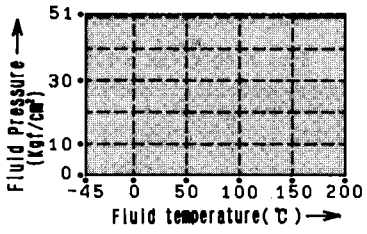


Fig. 2-2 Pillarfoil

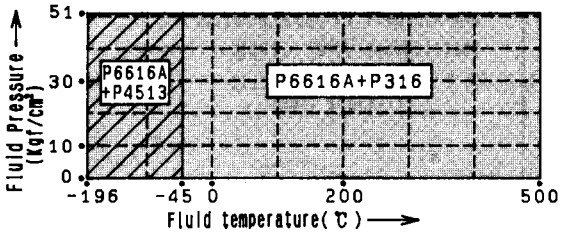


Fig. 3 Gasket Operating Temperature-Pressure Limitation

Fig. 3-1 Teflon/SUS316 (T/#9090) for Oxygen Clean 酸素禁油他

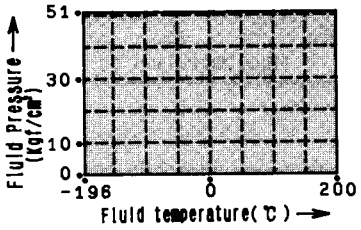


Fig. 3-2 Grafoil/SUS316 (T/#1806GR)

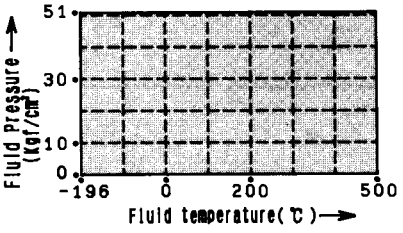


Fig. 4 Body Assembly Section View

Fig. 4-1 Valve Size 8″ (200mm) and Under

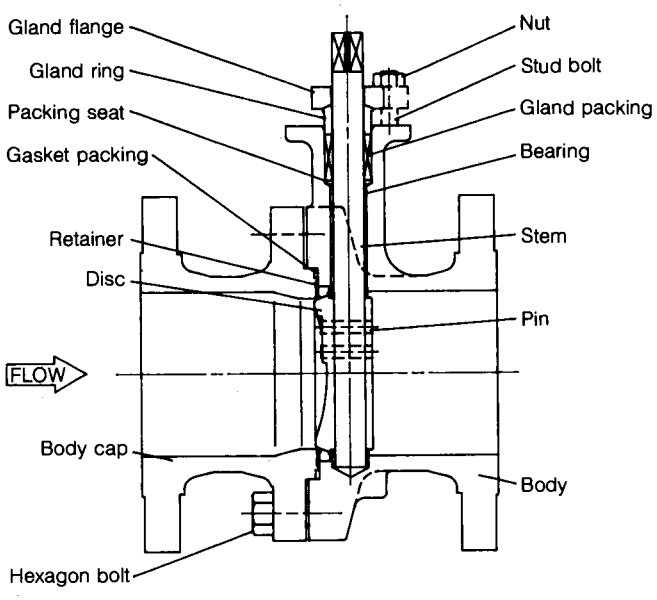


Fig. 4-2 Valve Size 10″ (250mm) and Over

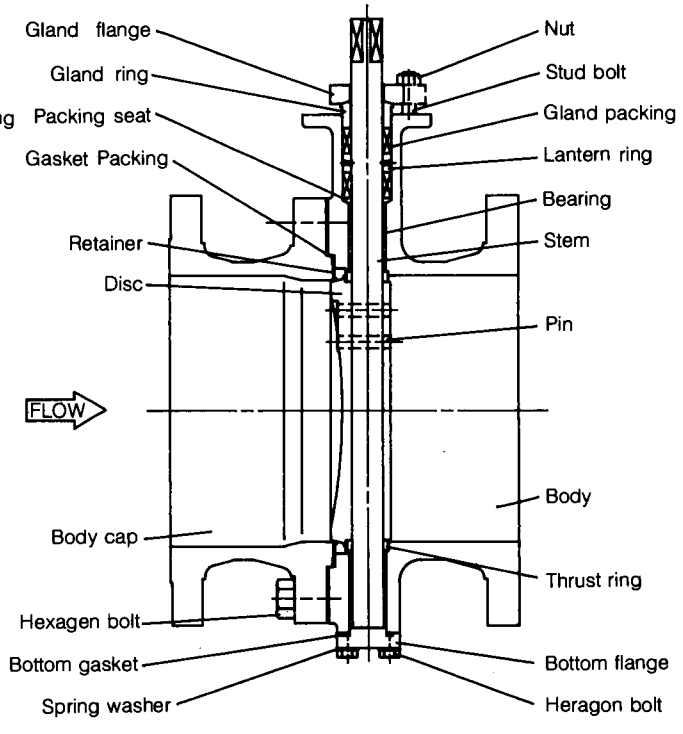


Table 4 Cv Value

Valve size Inch (mm)	L Class Body (10K 150#)		M Class Body (20K 300#)		Valve size Inch (mm)	L Class Body (10K 150#)		M Class Body (20K 300#)	
	60° Open	90° Open	60° Open	90° Open		60° Open	90° Open	60° Open	90° Open
3 (80)	125	260	110	185	12 (300)	2450	5000	2220	3750
4 (100)	230	470	210	330	14 (350)	3250	6700	2960	5360
5 (125)	365	760	325	530	16 (400)	4270	8700	3870	7000
6 (150)	630	1300	550	910	18 (450)	5350	11000	4900	8800
8 (200)	1100	2250	1000	1690	20 (500)	7000	14400	6300	11500
10 (250)	1760	3600	1630	2700	24 (600)	10100	21000	9240	16800

Fig. 5 Flow Characteristics

Fig. 5-1 L Class Body Flow Characteristics/ JIS 10K、ANSI(JPI) Class 150

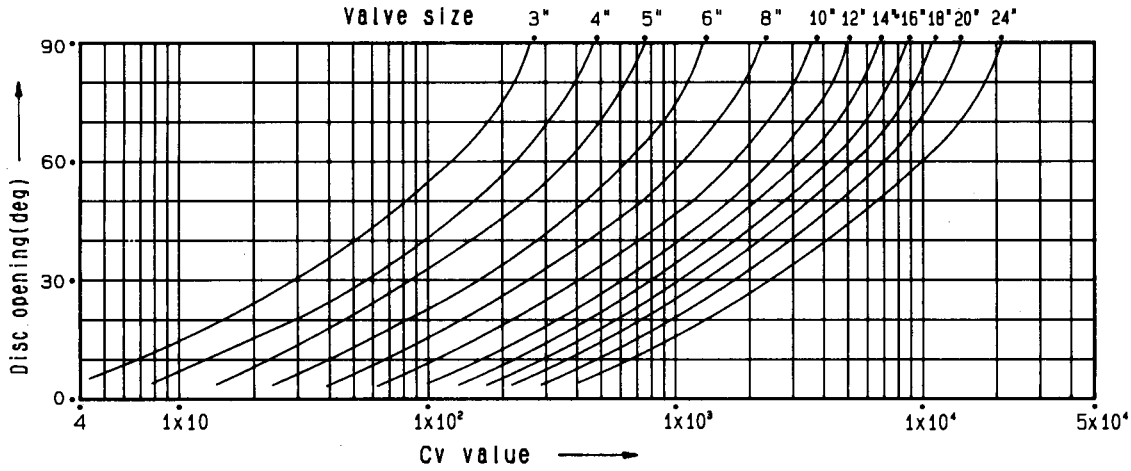


Fig. 5-2 M Class Body Flow Characteristics/ JIS 20K、ANSI(JPI) Class 300

