

Vacuum VALVE Solution



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There is always something
to do with vacuum tech in life.

Note * L : Linkage mechanism * B : Ball groove mechanism

Size Type		Shaft seal system	HV VALVE												UHV VALVE							
			KF 10	KF 16	KF 25	KF 40	KF 50	ISO 63	ISO 80	ISO 100	ISO 160	ISO 200	ISO 250	ISO 320	CF 16	CF 35	CF 63	CF 100	CF 150	CF 200	CF 275	CF 300
ALUMINUM BLOCK VALVES																						
Pneumatic All-in-one angle valve	Bellows		•	•	•																	
Pneumatic aluminum angle valve	Bellows		•	•	•	•	•															
	O-rings		•	•	•																	
Manual aluminum angle valve	Bellows		•	•	•	•																
	O-rings		•	•	•	•																
BUTTERFLY VALVES																						
Pneumatic butterfly valve	O-rings			•	•	•	•		•	•	•	•							•			
APC butterfly Valve	O-rings			•	•	•	•		•	•									•			
BALL VALVES																						
Manual ball valves	Teflon-ring		•	•	•	•		•	•													
Pneumatic butterfly valve	Teflon-ring			•	•	•		•	•													
Motor Drive Ball Valve	Teflon-ring			•	•	•																
GATE VALVES																						
UHV gate valve (L type) ^{*1} (Manual & Pneumatic)	Bellows														•					•	•	
UHV gate valve (B type) ^{*2} (Manual & Pneumatic)	Bellows															•	•	•	•			
UHV 3-position gate valve (B type) ^{*2}	Bellows															•	•	•	•			
HV gate valve (L type) ^{*1} (Manual & Pneumatic)	Bellows				•	•						•	•									
HV gate valve (B type) ^{*2} (Manual & Pneumatic)	Bellows						•		•	•	•											
HV 3-position gate valve (B type) ^{*2}	Bellows						•		•	•	•											
HV gate valve (Aluminum body) (Pneumatic)	O-ring												•									
PENDULUM VALVES																						
Pneumatic Pendulum Valve	O-ring										•	•										
3-position pneumatic Pendulum Valve	O-ring											•										
APC Pendulum Valve	O-ring											•										

Note * EP : Electrolytic polishing surface treatment * Hard anodized : Hard anodized surface treatment

Type \ Size	Shaft seal system	Standard (S.S. body / gate)				Standard (A L body / gate)				Customized
		32 x 222	46 x 236	50 x 336	56 x 496	32 x 222	46 x 236	50 x 336	56 x 496	50 ~ 200 x 2000 max.
TRANSFER VALVES AND DOORS										
Rectangular Transfer valve (EP)	Bellows	●	●	●	●	●	●	●	●	upon request
Rectangular Transfer valve (Hard anodized)	Bellows					●	●	●	●	
Door valve(EP)		●	●	●	●	●	●	●	●	

03-11

ALUMINUM BLOCK VALVES



Pneumatic All-in-one angle valve
Bellows



Pneumatic aluminum angle valve
Bellows



Pneumatic aluminum angle valve
O-ring



Manual aluminum angle valve
Bellows



Manual aluminum angle valve
O-ring

12-18

BUTTERFLY VALVES



Pneumatic butterfly valve
O-ring



APC butterfly Valve
O-ring

19-21

BALL VALVES



Manual ball valves
Teflon-ring



Pneumatic butterfly valve
Teflon-ring



Motor Drive Ball Valve
Teflon-ring

22-35

GATE VALVES



UHV gate valve (L type)¹
Bellows



UHV gate valve (B type)²
Bellows



UHV 3-position gate valve (B type)²
Bellows



HV gate valve (L type)¹
Bellows



HV gate valve (B type)²
Bellows



HV 3-position gate valve (B type)²
Bellows



HV gate valve (Aluminum body)
O-ring

36-42

PENDULUM VALVES



Pneumatic Pendulum Valve
O-ring



3-position pneumatic Pendulum Valve
O-ring



APC Pendulum Valve
O-ring

43-49

TRANSFER VALVES AND DOORS



Rectangular Transfer valve (EP)
Bellows



Rectangular Transfer valve (Hard anodized)
Bellows



Door valve (EP)
Bellows

Photos of various applications



Venting with filter



Gas Isolation

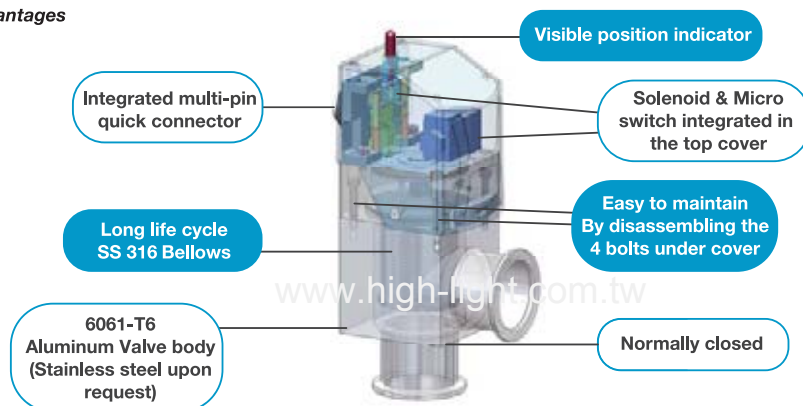


Process gas control

Features

- ▮ Twin micro switches in Htc standard All-in-one valve.
- ▮ Reed sensor or Micro switch is available upon request for HV type.
- ▮ Available in aluminum or stainless steel valve body.
- ▮ Non-magnetic aluminum 6061-T6 valve body.
- ▮ Visible position indicator on the top of valve.
- ▮ Electrical and visual (LED) position indication.
- ▮ Selectable operating mode ▮ Remote control via PLC or PC ▮ Local operation
- ▮ Easy maintenance, fast bellows and seal replacement.
- ▮ Fast opening and closing time.

Advantages



A.I.O. : Easy to plug & play

Htc All-in -one Type



Quick connector for solenoid & micro switches

General Type



Solenoid & reed sensor installed on the back of valve, 6 wires need to be connected

Specification

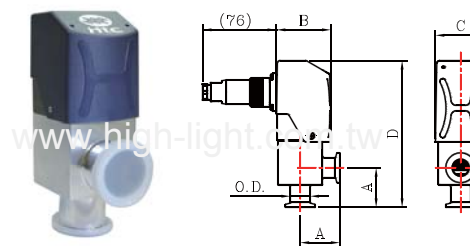
Pilot valve Nominal voltage Power DC voltage AC voltage Nominal diameter	Product nameplate		
	2.4W		
	3.6VA		
	1.2mm		
	Soldered joints		
Electrical position indicator Connection Rating	220 VAC / 1A		
	110 VAC / 1A		
	24 VDC / 0.5A		
Vacuum connection	KF16	KF25	KF40
Actuation	opening : pneumatic closing : by pressure spring		
Compressed air supply Tube connection Pressure range	Ø6 mm 4~6 Kg/cm ² (overpressure)		
Piston displacement	4 cm ³	11 cm ³	35 cm ³
Stroke of valve plate	6 mm	8 mm	13 mm
Conductance Angle valve	5 l/s	14 l/s	45 l/s
Switching frequency	100/min	100/min	75/min
Opening time	100ms	120ms	260ms
Closing time	100ms	160ms	540ms

Specification

Vacuum connection	KF16	KF25	KF40
Cycle life	10 million		
Tightness	1x10 ⁻⁹ mbar.l/s		
Pressure max.	5 bar(absolute)		
Operating pressure min.	1x10 ⁻⁸ mbar		
Operating pressure max.	2 bar		
Pressure difference Δp In closing direction In opening direction	5 bar 2 bar		
Temperature Ambiance Bakeout Housing Aluminum Actuator Pilot valve	0°C...+50°C 80°C 50°C 50°C		
Mounting orientation Flow direction	Any Any		
Materials Housing Aluminum Bellows/valve plate Pressure spring Seals Cover Visual position indicator Cylinder unit	A6061-T6 316 S.S. Spring steel Viton ABS A5083		
Weight All in one Aluminum Pneumatic N/C Aluminum	0.54 kg 0.36kg	0.73kg 0.56 kg	1.34kg 1.2kg

HV Aluminum Angle Valve - Pneumatic Actuated

Single-Acting , air to open , spring to close
With formed bellows seal, Limit Swith
All in one type

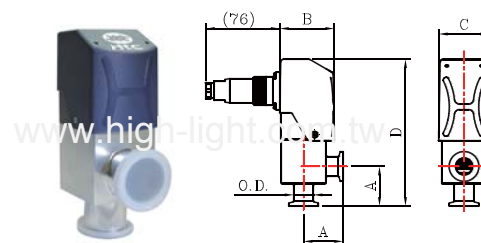


Features

- All -in-One design
- 10 million cycle 316 stainless steel bellows
- Easy maintenance, fast bellows and seal replacement
- Fast opening and closing time
- High purity aluminum body
- Leak rate : 1x10⁻⁹ mbar. l /sec
- Flange : KF(NW)

Model No.	O.D	A	B	C	D	Part No.
AVABHLS-KF16-P-E	20	40	55	51	148	31010911042MA
AVABHLS-KF25-P-E	28	50	65.5	60	153	31011111042MA
AVABHLS-KF40-P-E	45	65	81	75	201	31011311042MA

Single-Acting , air to open , spring to close
With formed bellows seal ,Solenoid, Limit Switch
All in one type



Features

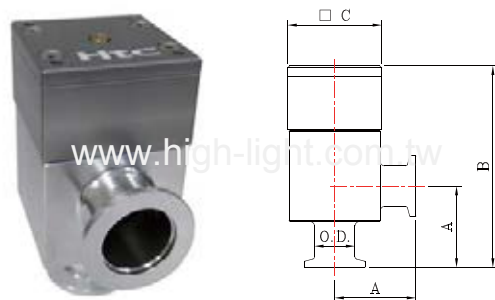
- All -in-One design
- 10 million cycle 316 stainless steel bellows
- Easy maintenance, fast bellows and seal replacement
- Fast opening and closing time
- High purity aluminum body
- Leak rate : 1x10⁻⁹ mbar. l /sec
- Flange : KF(NW)

Model No.	O.D	A	B	C	D
AVABHLSV-KF16-P-E	20	40	55	51	148
AVABHLSV-KF25-P-E	28	50	65.5	60	153
AVABHLSV-KF40-P-E	45	65	81	75	201

A.I.O. Parts NO

Solenoid	KF16	KF25	KF40
24V DC	31010911142MA	31011111142MA	31011311142MA
110V AC	31010911242MA	31011111242MA	31011311142MA
220V AC	31010911342MA	31011111342MA	31011311342MA
24V AC	31010911442MA	31011111442MA	31011311442MA

Single-Acting , air to open , spring to close
With formed bellows seal

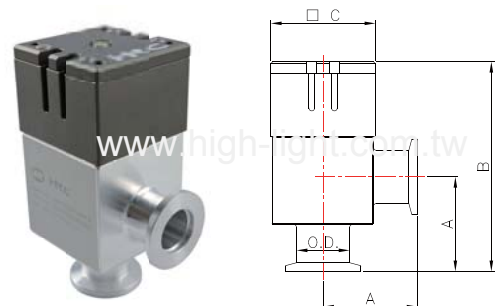


Features

- 10 million cycle 316 stainless steel bellows
- Easy maintenance, fast bellows and seal replacement
- Fast opening and closing time
- High purity aluminum body
- Leak rate : 1×10^{-9} mbar. l /sec
- Flange : KF(NW)

Model No.	O.D	A	B	C	Part No.
AVABH-KF16-P-E	20	40	99	46.4	31010911002MA
AVABH-KF25-P-E	28	50	105	55.4	31011111002MA
AVABH-KF40-P-E	45	65	147	70.4	31011311002MA

Single-Acting , air to open , spring to close
With formed bellows seal , Attached Reed Sensor

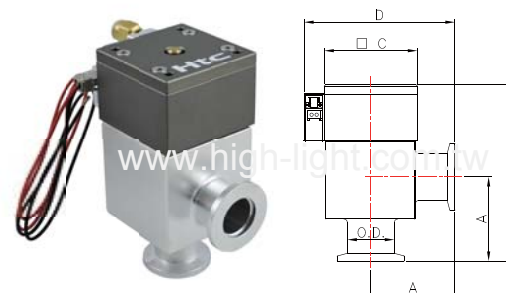


Features

- 10 million cycle 316 stainless steel bellows
- Easy maintenance, fast bellows and seal replacement
- Fast opening and closing time
- High purity aluminum body
- Leak rate : 1×10^{-9} mbar. l /sec
- Flange : KF(NW)

Model No.	O.D	A	B	C	Part No.
AVABHS-KF16-P-E	20	40	102	46.4	31010911022MA
AVABHS-KF25-P-E	28	50	111	55.4	31011111022MA
AVABHS-KF40-P-E	45	65	153	70.4	31011311022MA

Single-Acting , air to open , spring to close
With formed bellows seal , Attached Solenoid



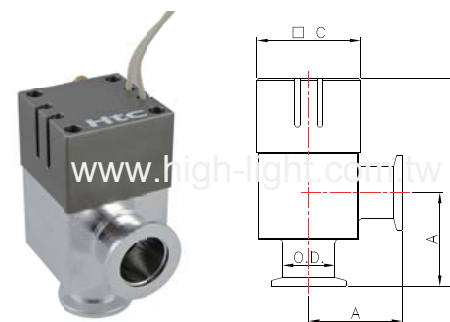
Features

- 10 million cycle 316 stainless steel bellows
- Easy maintenance, fast bellows and seal replacement
- Fast opening and closing time
- High purity aluminum body
- Leak rate : 1×10^{-9} mbar. l /sec
- Flange : KF(NW)

*with standard voltage DC24V solenoid,
 with LN type connector without reed sensors, without limit switch*

Model No.	O.D	A	B	C	D	Part No.
AVABHSV-KF16-P-E	20	40	99	46.4	75	31010911102MA
AVABHSV-KF25-P-E	28	50	105	55.4	90	31011111102MA
AVABHSV-KF40-P-E	45	65	147	70.4	112	31011311102MA

Double-Acting , air to open , air to close
With formed bellows seal , Attached Reed Sensor



Features

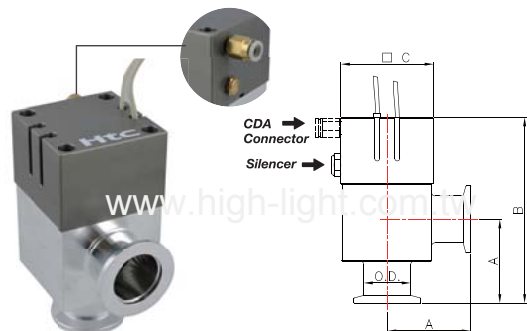
- 10 million cycle 316 stainless steel bellows
- Easy maintenance, fast bellows and seal replacement
- Fast opening and closing time
- High purity aluminum body
- Leak rate : 1×10^{-9} mbar. l /sec
- Flange : KF(NW)

with reed sensor, without limit switch, without solenoid valve

Model No.	O.D	A	B	C	Part No.
AVABHS-KF16-P2-E	20	40	108.2	46.4	31010921022MA
AVABHS-KF25-P2-E	28	50	111	55.4	31011121022MA
AVABHS-KF40-P2-E	45	65	153.8	70.4	31011321022MA

Normally Open

Single-Acting , spring to open , air to close
With formed bellows seal , Attached Reed Sensor



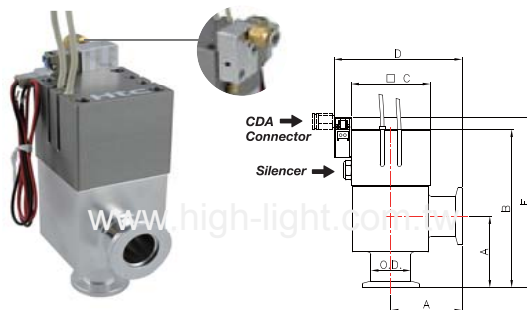
Features

- 10 million cycle 316 stainless steel bellows
- Easy maintenance, fast bellows and seal replacement
- Fast opening and closing
- High purity aluminum body
- Leak rate : 1×10^{-9} mbar. l/sec
- Flange : KF(NW)

with reed sensors, without limit switch, without solenoid

Model No.	O.D	A	B	C	Part No.
AVABHS-KF16-P-NO-E	20	40	108.2	46.4	31010941022MA
AVABHS-KF25-P-NO-E	28	50	111	55.4	31011141022MA
AVABHS-KF40-P-NO-E	45	65	153.8	70.4	31011341022MA

Single-Acting , spring to open , air to close
With formed bellows seal , Attached Reed Sensor & Solenoid



Features

- 10 million cycle 316 stainless steel bellows
- Easy maintenance, fast bellows and seal replacement
- Fast opening and closing
- High purity aluminum body
- Leak rate : 1×10^{-9} mbar. l/sec
- Flange : KF(NW)

with reed sensors, with standard voltage DC24V solenoid, with LN type connector, without limit switch

Model No.	O.D	A	B	C	D	E	Part No.
AVABHSSV-KF16-P-NO-E	20	40	102	46.4	75	111	31010941122MA
AVABHSSV-KF25-P-NO-E	28	50	111	55.4	90	120	31011141122MA
AVABHSSV-KF40-P-NO-E	45	65	153	70.4	112	162	31011341122MA

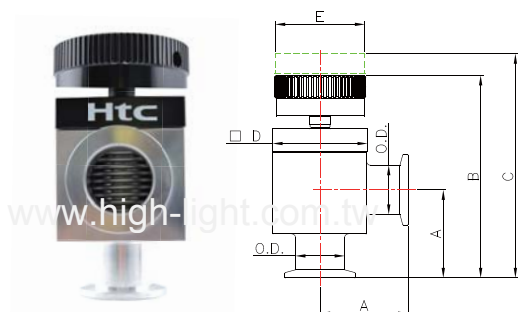
Manual aluminum angle valve (with bellows)

Specification

Vacuum connection Port	KF16	KF25	KF40
Actuation	Manual Actuator		
Stroke of valve plate	6 mm	8 mm	13 mm
Weight (Kg)	0.5	0.59	1.12
Conductance Angle valve	5 l/s	14 l/s	45 l/s
Cycles until first service (Tmax 80°C, under clean conditions)	20,000		
Leak Rate	1×10^{-9} mbar.l/s		
Pressure Range	1×10^{-8} mbar ~5 bar (absolute)		
Pressure difference Δp In closing direction In opening direction	5 bar 2 bar		
Temperature Ambiance Bakeout Housing Aluminum Actuator	0°C...+50°C 150°C 120°C		
Mounting orientation Flow direction	Any Any		
Materials Housing Aluminum Bellows/valve plate Seals	A6061-T6 316 S.S. Viton		

HV Aluminum Angle Valve - Manually Operated

With formed bellows

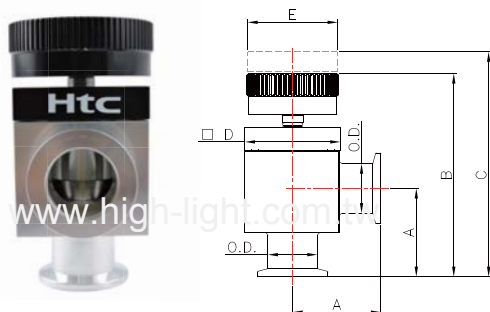


Features

- 316 stainless steel bellows
- Easy maintenance, fast bellows and seal replacement
- High purity aluminum body
- Leak rate : 1×10^{-9} mbar. l/sec
- Flange : KF(NW)

Model No.	O.D	A	B	C	D	E	Part No.
AVABH-KF16-M-E	20	40	103	107	45	52	31010901002MA
AVABH-KF25-M-E	28	50	110	115	54	52	31011101002MA
AVABH-KF40-M-E	45	65	148	157	70	62	31011301002MA

Without formed bellows



Features

- High purity aluminum body
- Leak rate : 1×10^{-9} mbar. l/sec
- Flange : KF(NW)

Model No.	O.D	A	B	C	D	E	Part No.
AVAH-KF16-M-E	20	40	105	110	45	52	31010901002M0
AVAH-KF25-M-E	28	50	110	115	54	52	31011101002M0
AVAH-KF40-M-E	45	65	150	157	70	62	31011301002M0

Pneumatic butterfly valve

Main applications

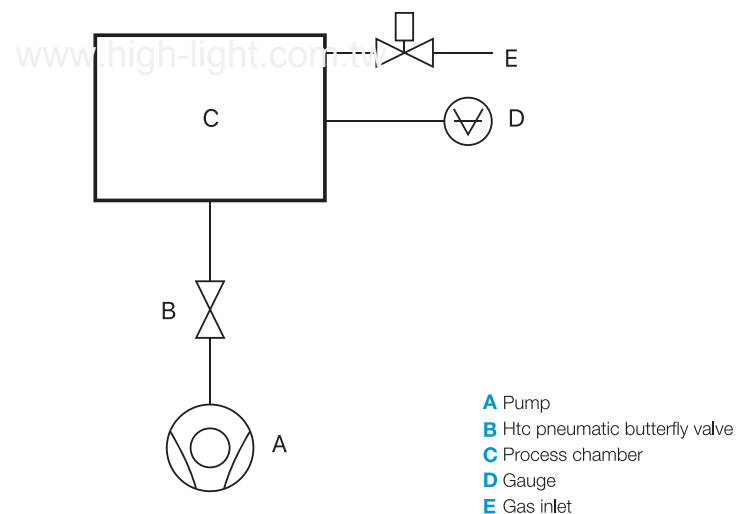
Compact isolation valve for clean processes.

Application process

- FPD
- SEMI
- PVD

Pneumatic butterfly valve gate system settings

System



Application

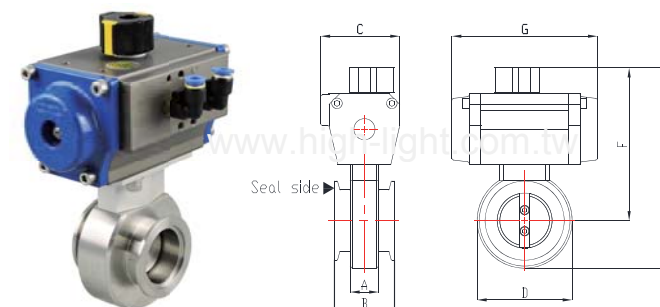
Htc Pneumatic butterfly valve is driven by rotating cylinder valve. The seal plate compacts O-ring isolated from the vacuum and atmosphere completely. Htc Pneumatic butterfly valve has advantages as quick opening and closing, easy installation, small size and long life cycles. Main application of Htc Pneumatic butterfly valve will be fully isolated contaminating and aggressive gas in processes. And the valve is located between pump and process chamber.

Technical Data

Material	Body		304S.S.
	Plate		304S.S.
	Shaft		304S.S.
	Gate seal		Viton
	Shaft seal		Viton
Mounting orientation	Any		
Cycles life	cycles	KF25 - KF50	1,500,000
		ISO63 - ISO160	1,500,000
		ISO200 - ISO250	1,000,000
Cycles life for plate o-ring	cycles	KF25 - KF50	250,000
		ISO63 - ISO160	250,000
		ISO200 - ISO250	200,000
Helium leak rate at 1 atm differential	mbar-Liter/sec		$< 1 \times 10^{-9}$
Pressure range in either direction	1×10 ⁻⁸ mbar to 2 bar		
Differential pressure Δ p in either direction			≤ 2 bar
Maximum differential pressure during opening	< 1.2 bar		
Compressed air connection			2x 1/4"NPT
Compressed air pressure	4 – 6 bar		
Weight	KF25		1.3 kg
	KF40		2.3 kg
	KF50		2.6 kg
	ISO63		4.2 kg
	ISO100		5.2 kg
	ISO160		9.8 kg
	ISO200		17.8 kg
	ISO250		15.1 kg

BUTTERFLY VALVE (ISO-KF TYPE) Pneumatic Actuated

air to open , air to close



Features

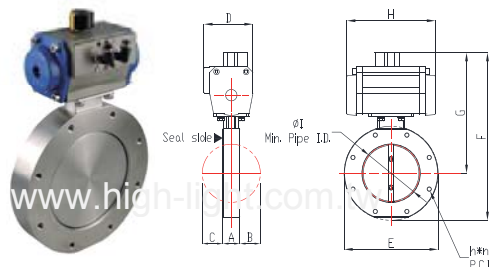
- Valve size for 1" (25.4mm) to 2" (50.8mm)
- Flange : ISO-KF
- Pressure Range : 10^{-8} mbar to 2 bar
- Leak rate: 1×10^{-9} mbar · l/sec
- Body materials : 304S.S.
- Seal materials : Viton
- Cycle life : 1,500,000
(O-ring on plate is a consumptive material in the butterfly valve, cycle life is 250,000)
- Option : Limit switch , solenoid
- Operating air pressure : 4~6.5 kg/cm²

Model No.	A	B	C	D	E	F	G	Part No.
KF25BFVP2	27	50	49	65	144	112	100	3202111101213
KF40BFVP2	27	57	75	80	192	152	138	3202131101213
KF50BFVP2	27	57	75	90	203	158	138	3202141101213

BUTTERFLY VALVE (ISO-B TYPE)

Pneumatic Actuated

air to open , air to close



Features

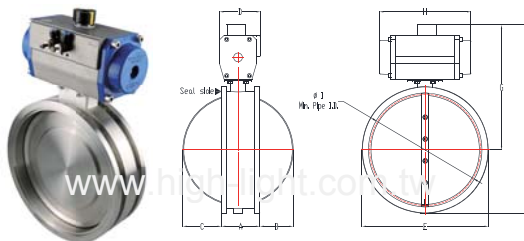
- | Valve size for 2-1/2" (63.5mm) to 8" (203.2mm)
- | Flange : ISO-F
- | Pressure Range : 10^{-8} mbar to 2 bar
- | Leak rate : 1×10^{-9} mbar · l/sec
- | Body materials : 304S.S.
- | Seal materials : Viton
- | Cycle life : ISO63-ISO160 1,500,000
ISO200 1,000,000
(O-ring on plate is a consumptive material in the butterfly valve, cycle life is 250,000 for ISO63-160; 200,000 for ISO200)
- | Option : Limit switch, solenoid
- | Operating air pressure : 4~6.5 kg/cm²

Model No.	A	B	C	D	E	F	G	H	h*No	P.C.D	I	Part No.
ISO63BFVP2	30	21	15	75	130	242.1	177.1	138	M8*4	110	55	3202151113213
ISO100BFVP2	30	36	36	86	165	288.5	211.5	155.5	M8*8	145	96.7	3202181113213
ISO160BFVP2	40	55.5	55.5	86	225	351.5	241.5	155.5	M10*8	200	146	3202201113213
ISO200BFVP2	50	76	76	104	285	441.5	299	230	M10*12	260	197	3202211113213

BUTTERFLY VALVE (ISO-K TYPE)

Pneumatic Actuated

air to open , air to close



Features

- | Valve size for 10" (254mm)
- | Flange : ISO-K
- | Pressure Range : 10^{-8} mbar to 2 bar
- | Leak rate: 1×10^{-9} mbar · l/sec
- | Body materials : 304S.S.
- | Seal materials : Viton
- | Cycle life : 1,000,000
(O-ring on plate is a consumptive material in the butterfly valve, cycle life is 200,000)
- | Option : Limit switch , solenoid
- | Operating air pressure : 4~6.5 kg/cm²

Model No.	A	B	C	D	E	F	G	H	I	Part No.
ISO250BFVP2	88	82.5	82.5	104	290	455	310	230	240	3202221113213

APC Butterfly Valve

Main applications

Downstream pressure control and isolation valve.

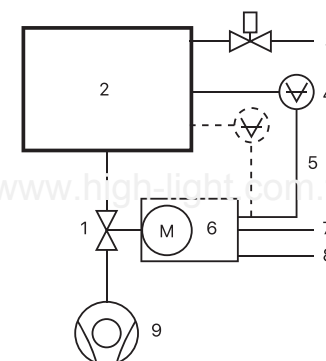
Application process

| SEMI | FPD | Solar | CVD

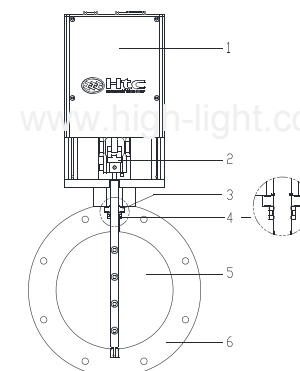
Features

- | Integrated pressure controller
- | Accurate pressure control
- | Compact isolation
- | Short response time
- | Friendly user interface

APC butterfly valve gate system settings

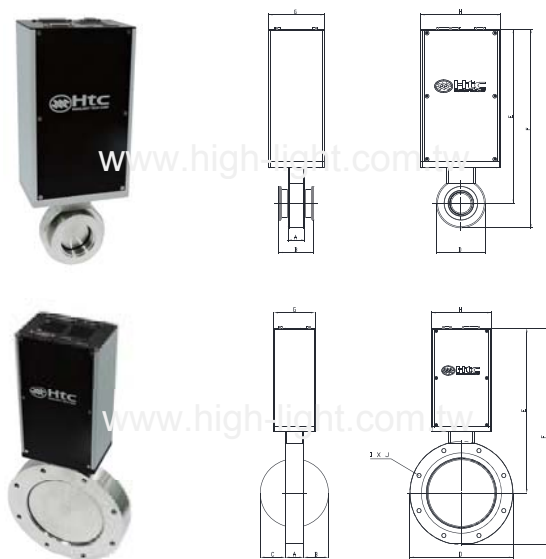


- 1 Valve
- 2 Process chamber
- 3 Gas inlet
- 4 Pressure sensor(s)
- 5 Sensor cable(s)
- 6 Controller and actuator
- 7 Cable to remote control unit
- 8 Cable to power supply
- 9 Pump



No.	Parts	Material	Quantity
1	APC Controller		1
2	Couplings	304S.S.	1
3	Bearing	304S.S.	1
4	O-Ring	VITON	2
5	Plate	304S.S.	1
6	Body	304S.S.	1

Butterfly valve control system - Valve



Features

- | Valve size : 1 1/2" ~ 2" ~ 2 1/2" ~ 4" ~ 6"
- | Flange : ISO-KF ~ ISO-F
- | Pressure Range : 10^{-8} mbar to 1.2 bar
- | Leak rate (valve body, valve seat) : 1×10^{-9} mbar. l/sec
- | Cycles until first service :
 - Pressure control : 2,000,000
 - Closing / opening : 250,000
- | Body, plate, shaft materials : 304 S.S.
- | Seal materials : Viton
- | Mounting position : Any
- | Position control : Multi-position setting (0° ~90°)
- | Typical opening / closing time : 0.85 s
- | Maximum differential pressure during opening ISO100~ISO160 0.2 bar
- | KF40 . KF50 . ISO63 1.0 bar
- | Max temperature
- Body 120°C
- Ambient 50°C

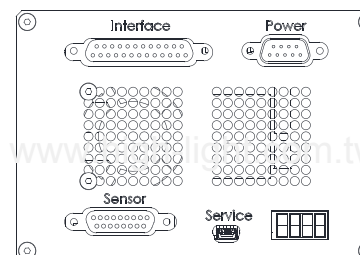
Model No.	A	B	C	D	E	F	G	H	I x J	P.C.D	Part No.
KF40BFVS4ER	27	57	-	80	282.5	322.5	90	130	-	-	3202131101214
KF50BFVS4ER	27	57	-	90	288	333	90	130	-	-	3202141101214
ISO63BFVS4ER	30	15	21	130	310	375	90	130	M8 x 4	110	3202151103214
ISO100BFVS4ER	30	36	36	165	329	411.5	90	130	M8 x 8	145	3202181103214
ISO160BFVS4ER	40	55.5	55.5	225	359	471.5	90	130	M10 x 8	200	3202201103214

Butterfly valve control system - Controller



Features

- | Sensor supply : 24V DC or ± 15 V DC
- | Backup power : Yes
- | Sensor input
 - Q'ty of sensors : 2
 - Signal voltage : 0-10V DC linear with pressure
 - Input resistance : $R_i = 47 \text{ k} \Omega$
 - Resolution : 2.3 mV
 - Sample rate : 1ms
- | Control accuracy : 0.2% of maximum sensor range
- | Position resolution : 8000 (step 0-90° rotation)



	Connection	Type
Power	Power input	DB-9 male
Sensor	Sensor input Sensor power supply	DB-15 female
Interface	RS232	DB-25 female
Service	APC service	Mini USB type B female

APC software functions

Control via computer by using the APC software offers convenient functions

- | Set control tuning parameter : GAIN
- | Pressure and position control mode
- | Schedule test Mode => 1 cycle schedule
- | Set valve open/close speed
- | Report APC HW/SW version, serial and model number
- | Report valve cycles and run hours
- | Set tolerance scope of pressure
- | Cycles life and pressure control record
- | Controller parameter upload and download
- | Power failure protection
- | Screen Capture





In vacuum industry, ball valves are durable and usually work to achieve perfect shutoff. A ball valve is a vacuum valve with a ball in the central part of the valve, the ball controls the flow through it. The ball has a hole, or port, through the middle so that when the port is in line with both ends of the valve, flow will occur. When the valve is closed, the hole is perpendicular to the ends of the valve, and flow is blocked. The handle or lever will be inline with the port position letting you "see" the valve's position when the valve is fully open. The ball valve, along with the butterfly valve, are part of the family of quarter turn valves.

Ball valve's simple, rugged structure provides high reliability in "dirty" vacuum application. For example, they are always used to isolate traps and scrubbers downstream from the chamber or vacuum pump in the process equipment. Ball valves also are suitable for isolating gauges, vacuum roughing lines, food processing lines and many other industrial applications.

Htc vacuum's ball valves have manual, pneumatic and electric actuators for various customers; custom design is available upon request, please contact us.

Motor Drive Specifications

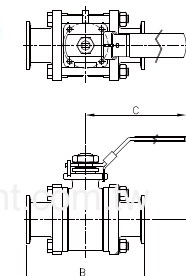
- | Pressure Range : 2atm ~ 1×10^{-4} mbar
- | Leak rate: 9×10^{-7} mbar.l/s
- | Wetted materials : 316S.S. , PTFE
- | Max temperature : Electric drive 80°C / Body 150°C
- | Time to full open : 50Hz-13sec , 60Hz-12sec
- | * The last letter of the P/N represents the Motor Voltage :
 A=AC 110V , B=AC 220V , C=AC 220 3 Φ , D=AC 380 3 Φ
- | Option : Limit switch

Note: Standard voltage 110V, other voltage see note *

Pneumatic Actuated Specifications

- | Pressure Range : 2atm ~ 1×10^{-4} mbar
- | Leak rate: 9×10^{-7} mbar.l/s
- | Wetted materials : 316S.S. , PTFE
- | Max temperature : Cylinder 80°C / Body 150°C
- | Compressed air connector : KF25-2x 1/8"NPT , KF40~KF50-2x 1/4"NPT
- | Option : Limit switch , solenoid

KF BALL VALVE Manually

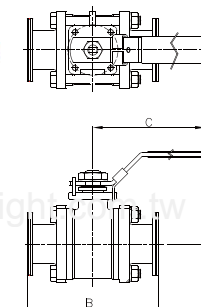


Features

- | Flange : KF(NW)
- | Operation 1/4 Turn manual open and close
- | Pressure Range : 2 bar ~ 1×10^{-4} mbar
- | Leak rate : 9×10^{-7} mbar.l/sec
- | Wetted materials : 316 S.S. , Viton, PTFE
- | Max pressure : 2 bar
- | Operating temperature : 150°C max

Model No.	SIZE"(mm)	Connector	A	B	C	Part No.
KF16BV092	3/4" (19.05)	KF16	64.4	92	121.5	3201093101131
KF25BV107	1" (25.4)	KF25	92	107	151	3201113101131
KF40BV130	1.5" (38.1)	KF40	120.5	130	178	3201133101131
KF50BV151	2" (50.8)	KF50	134	151	178	3201143101131
KF80BV242	3" (78.2)	KF80	155	242	262	3201163101131
KF100BV254	4" (101.6)	KF100	180	254	290	3201183101131

ISO BALL VALVE Manually



Features

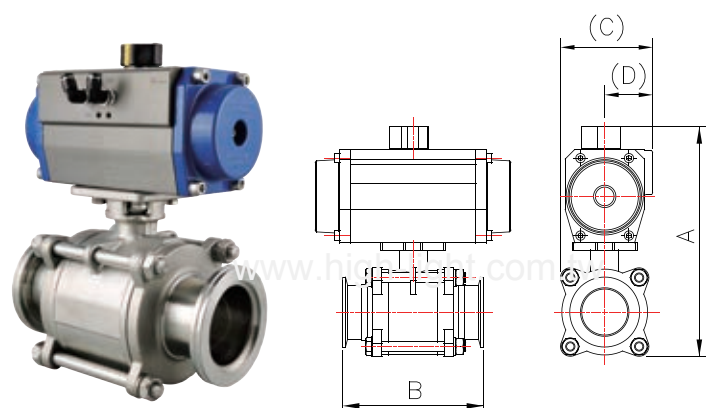
- | Flange : ISO
- | Operation : 1/4 Turn manual open and close
- | Pressure Range : 2 bar ~ 1×10^{-4} mbar
- | Leak rate : 9×10^{-7} mbar.l/sec
- | Wetted materials : 316 S.S. , Viton, PTFE
- | Max pressure : 2 bar
- | Operating temperature : 150°C max

Model No.	SIZE"(mm)	Connector	A	B	C	Part No.
ISO80BV242	3" (76.2)	ISO80	155	242	262	3201163103131
ISO100BV254	4" (101.6)	ISO100	180	254	290	3201183103131

BALL VALVE

Pneumatic Actuated

air to open, air to close



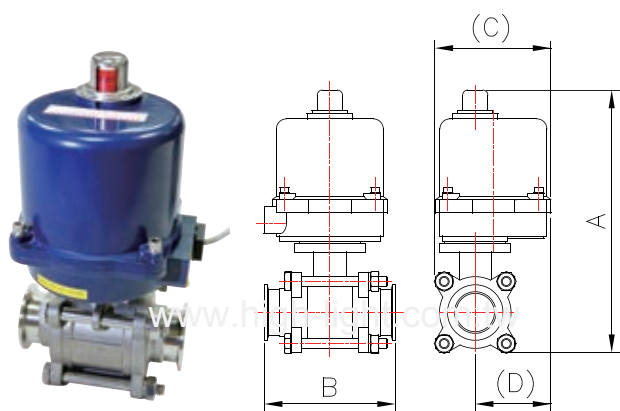
Features

- Valve size for 1"(25.4mm) to 2"(50.8mm)
- Flange : KF(NW)
- Pressure Range : 2 bar ~ 1×10^{-4} mbar
- Leak rate : 9×10^{-7} mbar.l/sec
- Wetted materials : 316 S.S. , PTFE
- Max temperature : Cylinder 80°C
Body 150°C
- Compressed air connector :
KF25-2x 1/8" NPT , KF40~KF50-2x 1/4" NPT
- Option : Limit switch , solenoid

Model No.	SIZE"(mm)	Connector	A	B	C	D	Part No.
KF25BV107P2	1" (25.4)	KF25	173	107	71	41.5	3201113101133
KF40BV130P2	1.5" (38.1)	KF40	216	130	88	48	3201133101133
KF50BV151P2	2" (50.8)	KF50	246	151	99	51.5	3201143101133

BALL VALVE

Motor drive



Features

- Valve size for 1"(25.4mm) to 2"(50.8mm)
- Flange : KF(NW)
- Pressure Range : 2 bar ~ 1×10^{-4} mbar
- Leak rate : 9×10^{-7} mbar.l/sec
- Wetted materials : 316 S.S. , PTFE
- Max temperature : Motor drive 80°C
Body 150°C
- Time to full open : 50Hz-13sec , 60Hz-12sec
- * The last letter of the P/N represents the Motor Voltage :
A=AC 110V, B= AC 220V, C=AC 220 3Φ, D=AC 380 3Φ
- Option : Limit switch

Standard voltage 110V, other voltage see note *

Model No.	SIZE"(mm)	Connector	A	B	C	D	Part No.
KF25BV107E	1" (25.4)	KF25	231	107	114	79	320111310113A
KF40BV130E	1.5" (38.1)	KF40	258	130	119	79	320113310113A
KF50BV151E	2" (50.8)	KF50	318	151	114	57	320114310113A

Vacuum gate valves manufacturers

Htc vacuum (HIGHLIGHT TECH CORP.)gate valves are appropriate for both HV and UHV applications and can be operated in pneumatic or in manual modes. Htc gate valves can be used with Cryo-Pumps, Turbomolecular Pumps or in any applications requiring clean, high life cycle, and low maintenance processing. Htc gate valves are available in all flange configurations, KF, ISO, ANSI, JIS, and CF.

Vacuum gate valve advanced service and support

Htc vacuum gate valve are available with various options to allow you to select exactly the features you need for your applications. You can add the roughing and gauge ports on the basic valve style.



Please refer to the left photo :

we added an elbow with a CF flange on the valve body to meet the special requirement of the customer. If you have any unique inquiry please contact us, we can discuss about the details of port type, size and location.

There are some critical applications of valves in Lab and research center which need RGA (Residual Gas Analyzer) data of valves to confirm the outgassing source of the system. Htc has the integrated RGA system with Inficon MPH100M analyzer with industry-leading data collection speed, minimum detectable partial pressure and signal-to-noise ratio. Htc is able to provide customers the RGA report for the price of the fixture and normal labor charge.



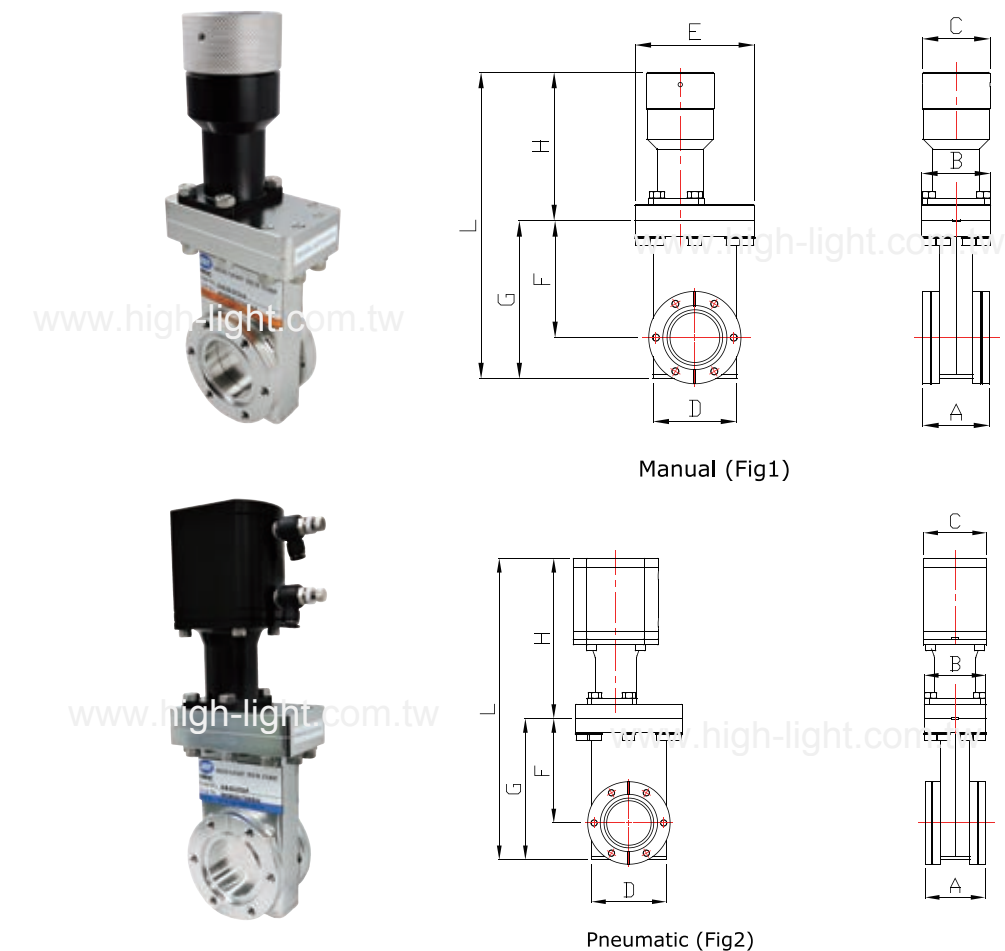
UHV-GATE VALVES (unlubricated mechanism)

Material	Body	304 S.S.
	Carriage	304 S.S.
	Gate	304 S.S.
	Bellows	AM 350
Cycle Life	size under 4" (included)	100,000
	size above 4"	50,000
Helium leak rates at 1 atm differential	$<5 \times 10^{-10}$ mbar. l/sec for gasket seal	
Bake Temperature	Valve body (metal bonnet seal)	Open 200°C
		Closed 150°C
	Actuator	Pneumatic $\leq 80^\circ\text{C}$
		Manual $\leq 200^\circ\text{C}$
Pressure Range (mbar)	$1 \times 10^{-10} \sim 1000$	
Maximum ΔP (mbar)	27 before opening	
Standard Seal	Gate	Viton O-ring
	Bonnet	OFHC copper gasket
Actuator	Pneumatic or Manual	
Surface Treatment	Scotch Polished	
Options	a. Position indicator	
	b. Pneumatic control solenoid valve	
	c. Roughing port	
	d. Other material Gate O-ring seal	

Gate Valve (Linkage mechanism)

CF - Flange (Mini)

UHV Serives (with Bellows, Metal Bonnet Seal)



Model No.	Part No.	Port Dia.	Bonnet Seal	Actuator type	Fig.	Flange O.D.	Bolt P.C.D.	Bolt Size
GVB-SS-CF35-M	GB3A111	37.5	Metal	M*	1	69.5	58.7	M6 x 6
GVB-SS-CF35-P	GB3A311	37.5	Metal	P**	2	69.5	58.7	M6 x 6
GVB-SS-CF50-M	GB3B111	50	Metal	M*	1	86	72.4	M8 x 8
GVB-SS-CF50-P	GB3B311	50	Metal	P**	2	86	72.4	M8 x 8

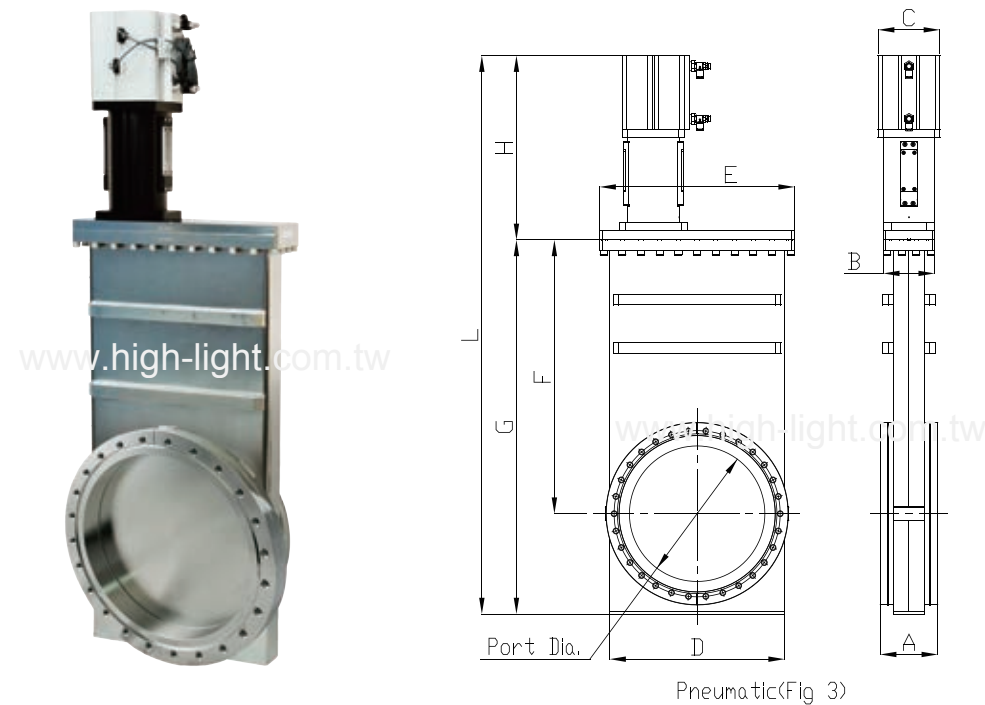
Model No.	A	B	C	D	E	F	G	H	L
GVB-SS-CF35-M	45.4	52	51	63	90	88	119	113	232
GVB-SS-CF35-P	45.4	52	53	63	90	88	119	135	254
GVB-SS-CF50-M	56	56	51	81	104	123	167	129	296
GVB-SS-CF50-P	56	56	53	81	104	123	167	154	321

*M : Manual

**P : Pneumatic

CF - Flange (Large)

UHV Serives (with Bellows, Metal Bonnet Seal)



Model No.	Part No.	Port Dia.	Bonnet Seal	Actuator type	Fig.	Flange O.D.	Bolt P.C.D.	Bolt Size
GVB-SS-CF275-P	GB3H311	250	Metal	P**	8	336.5	306.5	M10 x 30
GVB-SS-CF300-P	GB3J311	305	Metal	P**	8	355.6	325.7	M10 x 30

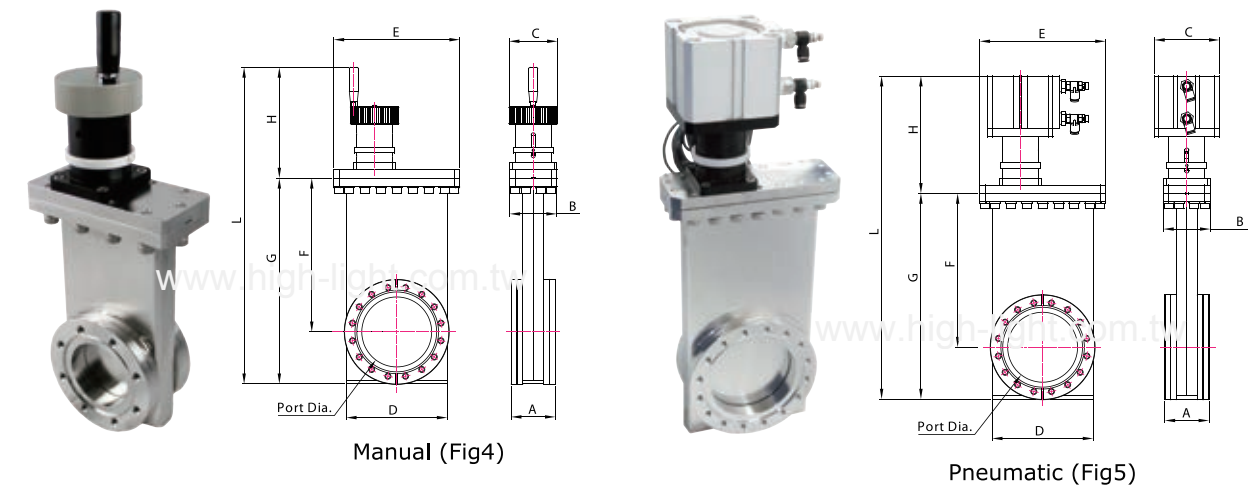
Model No.	A	B	C	D	E	F	G	H	L
GVB-SS-CF275-P	106.4	95	114	323	360	505	690	340	1030
GVB-SS-CF300-P	112.6	105	104	367	415	554	750	361	1111

*M : Manual

**P : Pneumatic

Gate Valve (Ball groove mechanism)

CF - Flange



Model No.	Part No.	Port Dia.	Bonnet Seal	Actuator type	Fig.	Flange O.D.	Bolt P.C.D.	Bolt Size
GVBB-SS-CF63-M	GB3C411	63.7	Metal	M*	4	113.6	92.1	M8 x 8
GVBB-SS-CF63-P	GB3C511	63.7	Metal	P**	5	113.6	92.1	M8 x 8
GVBB-SS-CF100-M	GB3E411	102	Metal	M*	4	151.6	130.3	M8 x 16
GVBB-SS-CF100-P	GB3E511	102	Metal	P**	5	151.6	130.3	M8 x 16
GVBB-SS-CF150-M	GB3F411	153	Metal	M*	4	202.5	181	M8 x 20
GVBB-SS-CF150-P	GB3F511	153	Metal	P**	5	202.5	181	M8 x 20
GVBB-SS-CF200-M	GB3G411	200	Metal	M*	4	253.2	231.8	M8 x 24
GVBB-SS-CF200-P	GB3G511	200	Metal	P**	5	253.2	231.8	M8 x 24

Model No.	A	B	C	D	E	F	G	H	L
GVBB-SS-CF63-M	65	68	70	107	143	158	207	160	367
GVBB-SS-CF63-P	65	68	62	107	143	158	207	155	362
GVBB-SS-CF100-M	69.6	68	70	146	182	222	297	160	457
GVBB-SS-CF100-P	69.6	68	94	146	182	222	297	170	467
GVBB-SS-CF150-M	79	70	78	204	238	306.5	407	183	590
GVBB-SS-CF150-P	79	70	94	204	238	306.5	407	198	605
GVBB-SS-CF200-M	84.4	70	78	245	282	382	506	183	689
GVBB-SS-CF200-P	84.4	70	94	245	282	382	506	198	704

*M : Manual

**P : Pneumatic

UHV 3-POSITION THROTTLE GATE VALVE (Ball groove mechanism)

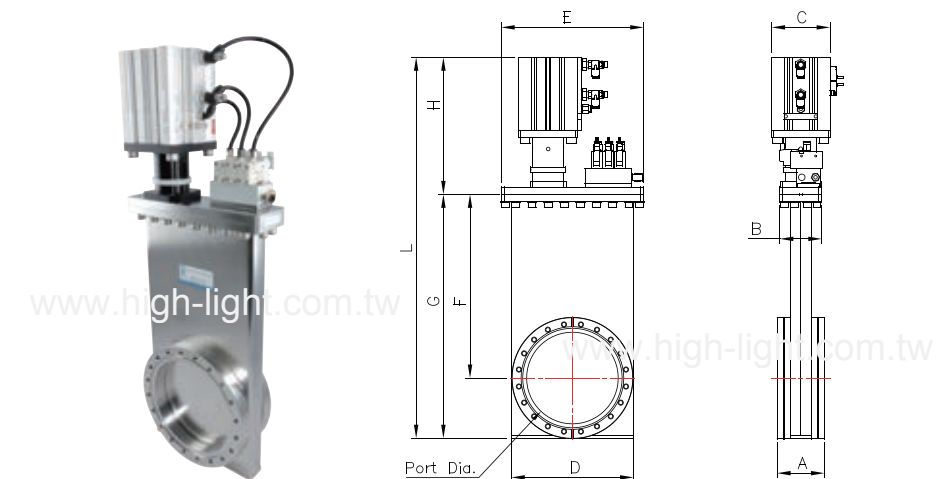
Features

- Use lockable cylinder, gate plate could precisely stop at alternative position.
- Alternative position is set by reed sensor.
- Good reproducibility of gate plate position, tolerance $\pm 1\%$.
- Procedure control is programmable and flexible.

Material	Body	304 S.S.
	Carriage	304 S.S.
	Gate	304 S.S.
	Bellows	AM 350
Cycle Life	size under 4" (included)	100,000
	size above 4"	50,000
Helium leak rates at 1 atm differential	$<5 \times 10^{-10}$ mbar. l /sec for gasket seal	
Bake Temperature	Open	200°C Viton bonnet seal
	Closed	150°C Viton bonnet seal
Pressure Range (mbar)	UHV : $1 \times 10^{-10} \sim 1000$	
Maximum ΔP (mbar)	27 before opening	
Standard Seal	Gate	Viton O-ring
	Bonnet	OFHC copper gasket
Actuator	Pneumatic	
Surface Treatment	Scotch Polished	
Options	a. Position indicator b. Pneumatic control solenoid valve c. Roughing port d. Other material Gate O-ring seal	

3-Position Throttle Gate Valve

UHV TYPE



Model No.	Part No.	Port Dia.	Bonnet Seal	Flange O.D.	Bolt P.C.D.	Bolt Size
GVB3P-SS-CF63-P	GB3C611CB	63.7	Metal	113.6	92.1	M8 x 8
GVB3P-SS-CF100-P	GB3E611CB	102	Metal	151.6	130.3	M8 x 16
GVB3P-SS-CF150-P	GB3F611CB	153	Metal	202.5	181	M8 x 20
GVB3P-SS-CF200-P	GB3G611CB	200	Metal	253.2	231.8	M8 x 24

Model No.	A	B	C	D	E	F	G	H	L
GVB3P-SS-CF63-P	65	68	64	107	143	158	207	192	399
GVB3P-SS-CF100-P	69.6	68	98	146	182	222	297	215	512
GVB3P-SS-CF150-P	79	70	98	204	238	306.5	407	229	636
GVB3P-SS-CF200-P	84.4	70	98	245	282	382	506	239	745

Standard voltage DC24V with Solenoid & reed sensor

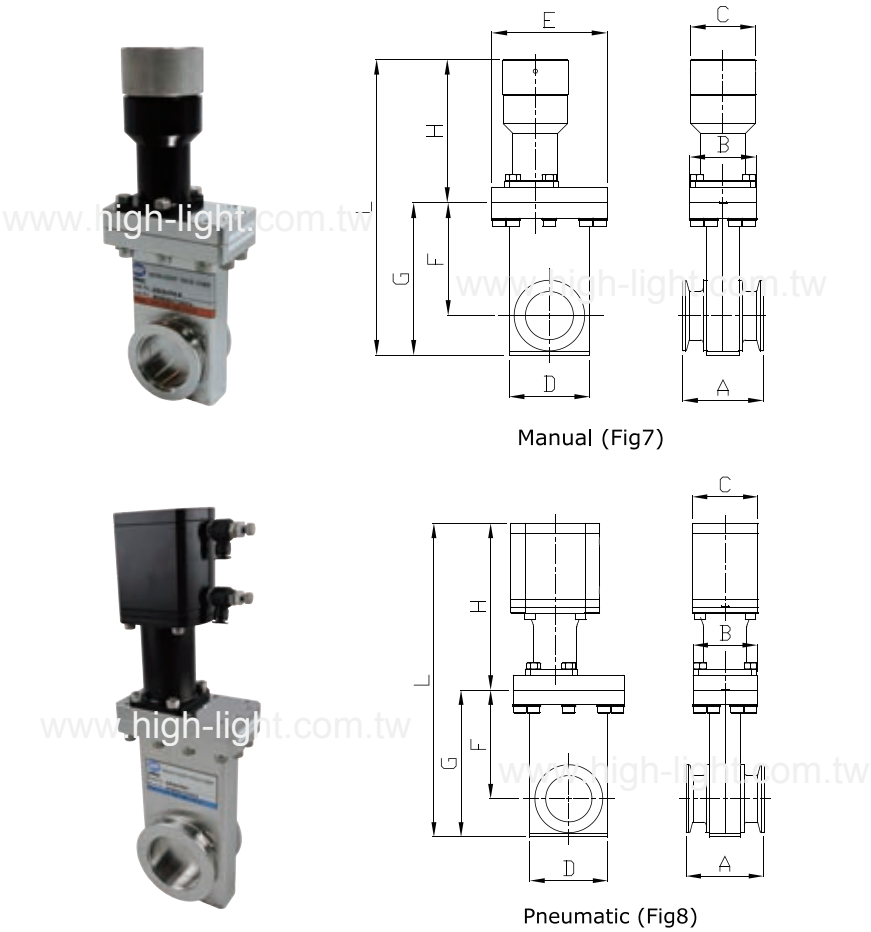
HV-GATE VALVES (lubricated mechanism)

Material	Body	304 S.S.
	Carriage	304 S.S.
	Gate	304 S.S.
	Bellows	AM 350
Cycle Life	size under 8" (included)	300,000
	size above 8"	50,000
Helium leak rates at 1 atm differential	$<2 \times 10^{-9}$ mbar. l/sec for O-ring	
Bake Temperature	Valve body	$\leq 150^{\circ}\text{C}$
	Manual and pneumatic actuator	$\leq 80^{\circ}\text{C}$
Pressure Range (mbar)	$1 \times 10^{-8} \sim 1000$	
Maximum ΔP (mbar)	27 before opening	
Standard Seal	Gate	Viton O-ring
	Bonnet	Viton O-ring
Actuator	Pneumatic or Manual	
Surface Treatment	Scotch Polished	
Options	a. Position indicator b. Pneumatic control solenoid valve c. Roughing port d. Other material Gate O-ring seal	

Gate Valve (Linkage mechanism)

KF - Flange (Mini)

HV Serives (with Bellows, Elastomer Bonnet Seal)



Model No.	Part No.	Port Dia.	Bonnet Seal	Actuator O.D.	Fig.	Flange O.D.
GVB-SS-KF40-M	GA1A112	38	Viton	M*	7	55
GVB-SS-KF40-P	GA1A312	38	Viton	P**	8	55
GVB-SS-KF50-M	GA1B112	50	Viton	M*	7	75
GVB-SS-KF50-P	GA1B312	50	Viton	P**	8	75

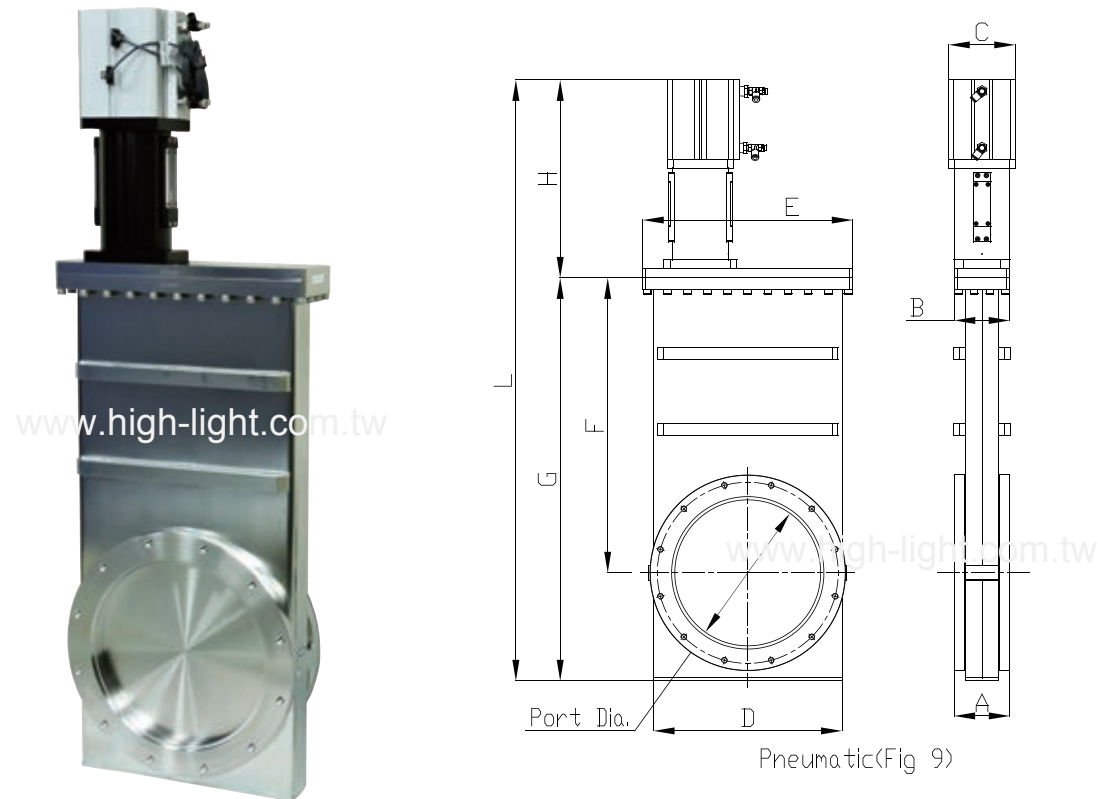
Model No.	A	B	C	D	E	F	G	H	L
GVB-SS-KF40-M	50	52	51	63	90	88	119	113	232
GVB-SS-KF40-P	50	52	53	63	90	88	119	135	254
GVB-SS-KF50-M	59	56	51	81	104	123	167	129	296
GVB-SS-KF50-P	59	56	53	81	104	123	167	154	321

*M : Manual

**P : Pneumatic

ISO - Flange (Large)

HV Series (with Bellows, Elastomer Bonnet Seal)



Model No.	Part No.	Port Dia.	Bonnet Seal	Actuator type	Fig.	Flange O.D.	Bolt P.C.D.	Bolt Size
GVB-SS-ISO250-P	GA4H311	250	Viton	P**	4	335	310	M10 x 12
GVB-SS-ISO320-P	GA4J311	305	Viton	P**	4	425	395	M12 x 12

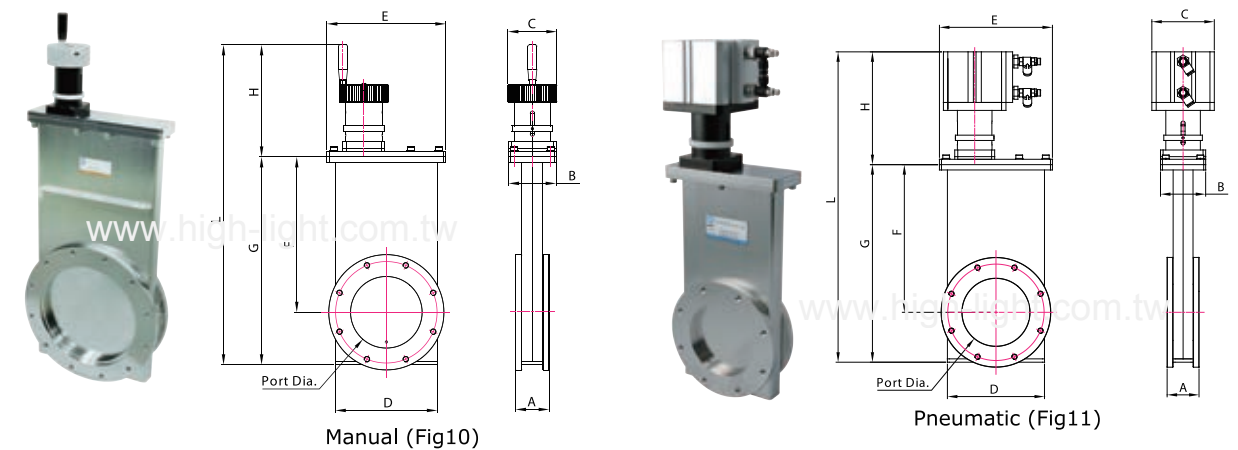
Model No.	A	B	C	D	E	F	G	H	L
GVB-SS-ISO250-P	95.4	95	114	323	360	505	690	340	1030
GVB-SS-ISO320-P	103.6	105	140	367	415	554	750	361	1111

*M : Manual

**P : Pneumatic

Gate Valve (Ball groove mechanism)

ISO - Flange



Model No.	Part No.	Port Dia.	Bonnet Seal	Actuator O.D.	Fig.	Flange O.D.	Flange O.D.	Flange O.D.
GVBB-SS-ISO63-M	GA4C411	63.7	Viton	M*	10	130	110	M8 x 4
GVBB-SS-ISO63-P	GA4C511	63.7	Viton	P**	11	130	110	M8 x 4
GVBB-SS-ISO100-M	GA4E411	102	Viton	M*	10	165	145	M8 x 8
GVBB-SS-ISO100-P	GA4E511	102	Viton	P**	11	165	145	M8 x 8
GVBB-SS-ISO160-M	GA4F411	153	Viton	M*	10	225	200	M10 x 8
GVBB-SS-ISO160-P	GA4F511	153	Viton	P**	11	225	200	M10 x 8
GVBB-SS-ISO200-M	GA4G411	200	Viton	M*	10	285	260	M10 x 12
GVBB-SS-ISO200-P	GA4G511	200	Viton	P**	11	285	260	M10 x 12

Model No.	A	B	C	D	E	F	G	H	L
GVBB-SS-ISO63-M	53	68	70	107	128	158	207	160	367
GVBB-SS-ISO63-P	53	68	62	107	128	158	207	155	362
GVBB-SS-ISO100-M	53.6	68	70	146	170	222	297	160	457
GVBB-SS-ISO100-P	53.6	68	94	146	170	222	297	170	467
GVBB-SS-ISO160-M	67	68	78	204	220	306.5	407	183	590
GVBB-SS-ISO160-P	67	68	94	204	220	306.5	407	198	605
GVBB-SS-ISO200-M	67	70	78	245	267	383	507	183	690
GVBB-SS-ISO200-P	67	70	94	245	267	383	507	198	705

*M : Manual

**P : Pneumatic

HV 3-POSITION THROTTLE GATE VALVES (Ball groove mechanism)

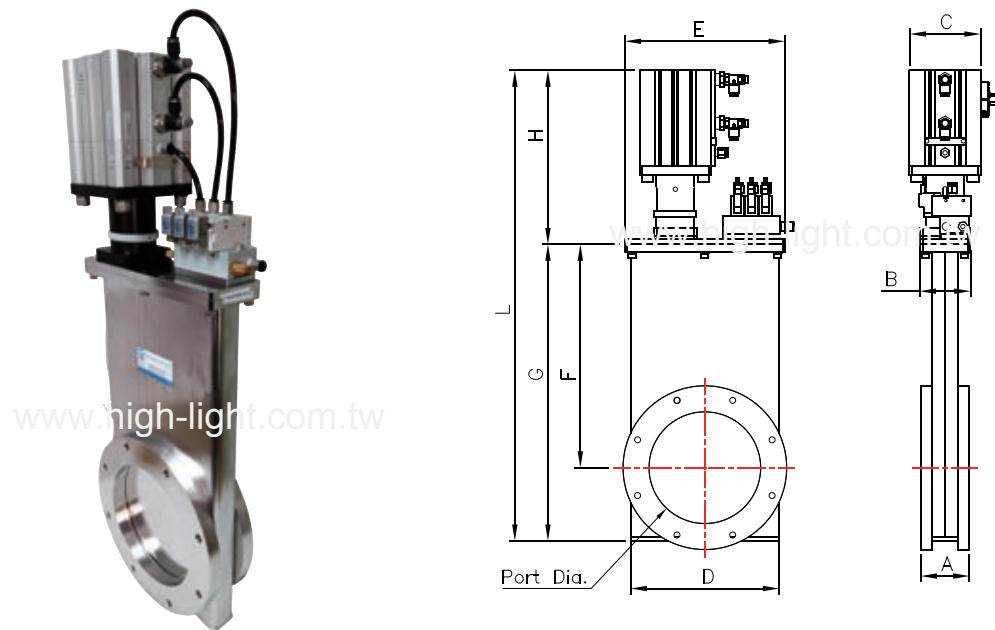
Features

- Use lockable cylinder, gate plate could precisely stop at alternative position.
- Alternative position is set by reed sensor.
- Good reproducibility of gate plate position, tolerance $\pm 1\%$.
- Procedure control is programmable and flexible.

Material	Body	304 S.S.
	Carriage	304 S.S.
	Gate	304 S.S.
	Bellows	AM 350
Cycle Life	size under 8" (included)	300,000
	size above 8"	50,000
Helium leak rates at 1 atm differential	$< 2 \times 10^{-9}$ mbar. l/sec for O-ring	
Bake Temperature	Open	200°C Viton bonnet seal
	Closed	150°C Viton bonnet seal
Pressure Range (mbar)	HV : $1 \times 10^{-8} \sim 1000$	
Maximum ΔP (mbar)	27 before opening	
Standard Seal	Gate	Viton O-ring
	Bonnet	Viton O-ring
Actuator	Pneumatic	
Surface Treatment	Scotch Polished	
Options	a. Position indicator b. Pneumatic control solenoid valve c. Roughing port d. Other material Gate O-ring seal	

3-Position Throttle Gate Valve

HV TYPE



Model No.	Part No.	Port Dia.	Bonnet Seal	Flange O.D.	Bolt P.C.D.	Bolt Size
GVB3P-SS-ISO63-P	GA4C611CB	63.7	Viton	130	110	M8 x 4
GVB3P-SS-ISO100-P	GA4E611CB	102	Viton	165	145	M8 x 8
GVB3P-SS-ISO160-P	GA4F611CB	153	Viton	225	200	M10 x 8
GVB3P-SS-ISO200-P	GA4G611CB	200	Viton	285	260	M10 x 12

Model No.	A	B	C	D	E	F	G	H	L
GVB3P-SS-ISO63-P	53	68	64	107	128	158	207	192	399
GVB3P-SS-ISO100-P	53.6	68	98	146	170	222	297	215	512
GVB3P-SS-ISO160-P	67	68	98	204	220	306.5	407	229	636
GVB3P-SS-ISO200-P	67	70	98	245	267	383	507	239	746

Standard voltage DC24V with Solenoid & reed sensor

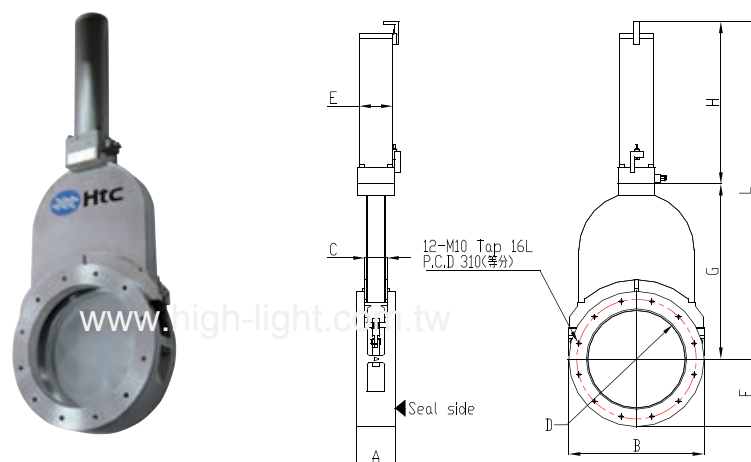
HV ALUMINUM GATE VALVE

Specification

- Model : ISO-F 250 GV
- Pressure Range : 10^{-7} mbar to 1 bar
- Leak rate : $<2 \times 10^{-8}$ mbar. l/sec
- Differential pressure on the plate : ≤ 1 bar
- Differential pressure at opening : ≤ 30 mbar
- Material :
 - Top valve body : 304S.S.
 - Bottom valve body : 6061-T6 aluminum
 - Shaft : 304S.S.
 - Carriage : 6061-T6 aluminum
 - Bonnet / gate / shaft seals : Viton
- Max temperature : Cylinder $\leq 80^{\circ}\text{C}$
Body $\leq 120^{\circ}\text{C}$
- Compressed air : 4-7 bar
- Compressed air connection : M5
- Mounting position : Any
- Conductance : 22,000 l/s
- Closing time : 5.0 s
- Opening time : 5.0 s
- Cycle until first service : 100,000
- Weight : 27.0 Kg

HV Type

Aluminum Body, without bellows



Model No.	Part No.	SENSOR	A	B	C	D	E	F	G	H	L
GVS-AL-ISO250-P	G14H511NA	YES	100	Φ352	58.5	261	86	176	455	422	877

Accessory	Description	Part No.
Solenoid (Optional)	DC24V	1000C0F202
	AC110V	1000C0F203
	VAC220V	1000C0F204
Sensor (Standard)	DC4-24(V) or AC4-240(V), 5-40 mA	60010021

PENDULUM VALVES

HTC vacuum pendulum valve is to install a large throttle valve between the process vacuum chamber and the turbine molecular pump inlet. The current pendulum valve design are constructed of Nickel plating or hard anodized for corrosion resistant and less dust. It's available with ISO 250 flanges in sizes 10" and can be operated in pneumatic or APC mode. This vacuum valve is usually designed as a gate valve or a pendulum valve, applications include OLED, FPD, and PV industries manufacturing systems.

Pneumatic pendulum valve

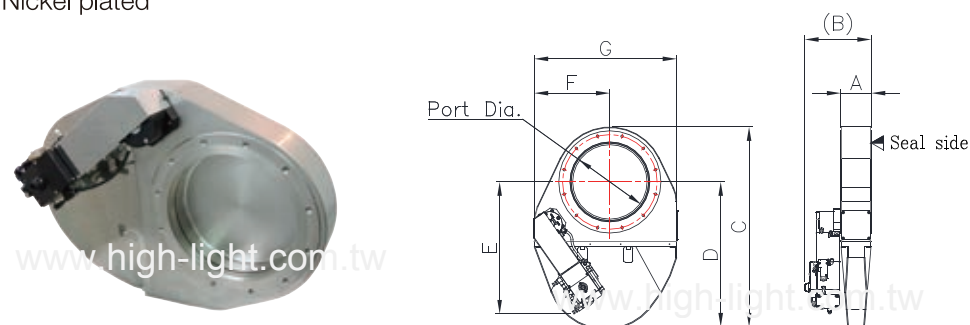
Design principle / features

- Low Vibration
- Corrosion resistant
- less dust
- Easy disassembly
- Without higher differential pressure

Material	Body	A6061-T6
	Gate	A6061-T6
Cycle Life	200,000 cycles	
Helium leak rates at 1 atm differential	Body Aluminum, nickel plated	$<1 \times 10^{-9}$ mbar. l/sec
	Body Aluminum, hard anodized	$<1 \times 10^{-5}$ mbar. l/sec
Bake Temperature	Body	$\leq 120^{\circ}\text{C}$
	Actuator	$\leq 80^{\circ}\text{C}$
Pressure Range	Solenoid valve	$\leq 50^{\circ}\text{C}$
	Nickel plated	1×10^{-8} mbar to 1.2bar
Maximum ΔP	Hard anodized	1×10^{-6} mbar to 1.2bar
	2 bar	
Maximum ΔP during opening	≤ 5 mbar	
Compressed air pressure	4 ~ 6 Kg/cm ²	
Opening / Closing time	4 / 4 sec	
Standard Seal	Gate	Viton O-ring
	Bonnet	Viton O-ring
Actuator	Electro-Pneumatic	
Weight	ISO-200	25 kg
	ISO-250	33 kg
Mounting position	Horizontal (Cylinder Up) & vertical	
Options	a. Other material of Gate O-ring b. Heater	

Pneumatically Actuated

Attached Reed Sensor & Solenoid
Nickel plated

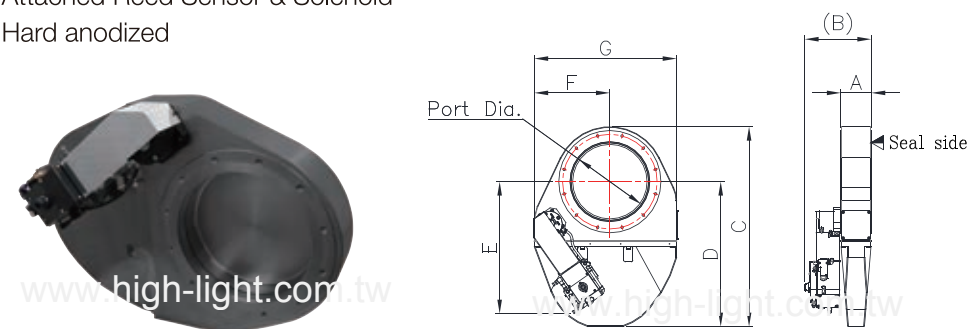


Model No.	Part No.		Port Dia.	Bonnet Seal	Flange O.D.	Bolt P.C.D.	Bolt Size
PVSSV-A-ISO200-P	GP1131212CB		200	Viton	285	260	M10 x 15
PVSSV-A-ISO250-P	GP1141212CB		254	Viton	335	310	M10 x 15
Model No.	A	B	C	D	E	F	G
PVSSV-A-ISO200-P	88	189	536	386	415	202	394
PVSSV-A-ISO250-P	100	201	655	475	438	248	467

Standard Surface Treatment : nickel plated
With reed sensors, with standard solenoid voltage DC24V

Pneumatically Actuated

Attached Reed Sensor & Solenoid
Hard anodized



Model No.	Part No.		Port Dia.	Bonnet Seal	Flange O.D.	Bolt P.C.D.	Bolt Size
PVSSV-HA-ISO200-P	GP1131213CB		200	Viton	285	260	M10 x 15
PVSSV-HA-ISO250-P	GP1141213CB		254	Viton	335	310	M10 x 15
Model No.	A	B	C	D	E	F	G
PVSSV-HA-ISO200-P	88	189	536	386	415	202	394
PVSSV-HA-ISO250-P	100	201	655	475	438	248	467

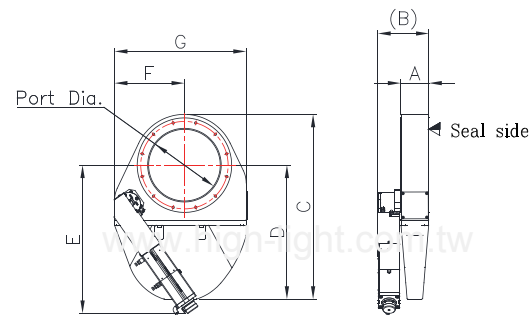
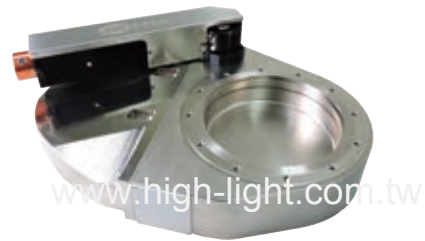
Surface Treatment : hard anodized
With reed sensors, with standard solenoid voltage DC24V

3-POSITION PENDULUM VALVE

Material	Body	A6061-T6
	Gate	A6061-T6
Cycle Life	200,000 cycles	
Helium leak rates at 1 atm differential	Body Aluminum, nickel plated	$< 1 \times 10^{-9}$ mbar. l/sec
	Body Aluminum, hard anodized	$< 1 \times 10^{-5}$ mbar. l/sec
Bake Temperature	Body	$\leq 120^{\circ}\text{C}$
	Actuator	$\leq 80^{\circ}\text{C}$
	Solenoid valve	$\leq 50^{\circ}\text{C}$
Pressure Range	Nickel plated	1×10^{-8} mbar to 1.2bar
	Hard anodized	1×10^{-6} mbar to 1.2bar
Maximum ΔP	2 bar	
Maximum ΔP during opening	≤ 5 mbar	
Compressed air pressure	4 ~ 6 Kg/cm ²	
Opening / Closing time	4 / 4 sec	
Standard Seal	Gate	Viton O-ring
	Bonnet	Viton O-ring
Actuator	Pneumatic and Manual	
Weight	35 kg	
Mounting position	Horizontal (Cylinder Up) or vertical	
Options	a. Other material of Gate O-ring b. Heater	

Pneumatically Actuated

Attached Reed Sensor
Nickel plated



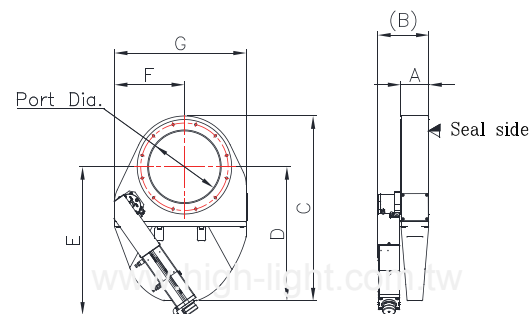
Model No.	Part No.	Port Dia.	Bonnet Seal	Flange O.D.	Bolt P.C.D.	Bolt Size
PVSM-A-ISO250-P	GP1143212NA	254	Viton	335	310	M10 x 15

Model No.	A	B	C	D	E	F	G
PVSM-A-ISO250-P	100	201	655	475	525	248	467

Standard Surface Treatment : nickel plated
With reed sensors

Pneumatically Actuated

Attached Reed Sensor
Hard anodized



Model No.	Part No.	Port Dia.	Bonnet Seal	Flange O.D.	Bolt P.C.D.	Bolt Size
PVSM-HA-ISO250-P	GP1143213NA	254	Viton	335	310	M10 x 15

Model No.	A	B	C	D	E	F	G
PVSM-HA-ISO250-P	100	201	655	475	525	248	467

Surface Treatment : hard anodized
With reed sensors

APC pendulum valve

Main applications

Downstream pressure control and isolation valve.

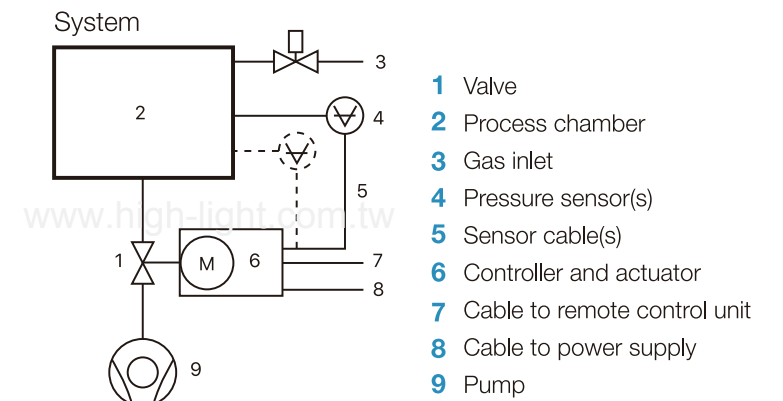
Application process

SEMI | FPD | Solar | CVD

Features

- Integrated pressure controller
- Accurate pressure control
- Compact isolation
- Short response time
- Friendly user interface

APC pendulum valve gate system settings

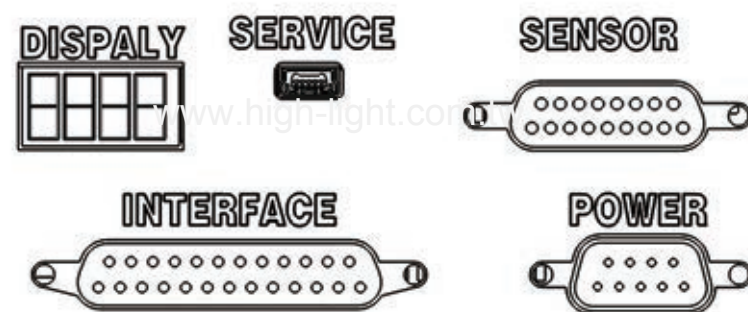


Actuator unit with controller		
Power consumption	+24 V DC (±10%)	
	100 W max. (controller + motor)	
	10 W max. for Power Failure Option	
Throttling Cycle	36 W max. for Sensor Power Supply	
Sensor supply	200,000 cycles	
Sensor Input	24 V DC or ± 15 V DC	
	Signal voltage	0 - 10 V DC linear with pressure
	Input resistance	Ri = 100kΩ
	Resolution	2.3 mV
Control accuracy	Sampling rate	
	1 ms	
Position resolution	0.2% of maximum sensor range	
Ambient temperature	≥ 8000	
	50°C max	

Material	Body	A6061-T6
	Gate	A6061-T6
Cycle Life	Closing / Opening	200,000 cycles
	Pressure Control	1,000,000 cycles
Helium leak rates at 1 atm differential	Body Aluminum, nickel plated	<1×10 ⁻⁹ mbar. l/sec
	Body Aluminum, hard anodized	<1×10 ⁻⁵ mbar. l/sec
Bake Temperature	Body	≤ 120°C
Pressure Range	Nickel plated	1×10 ⁻⁸ mbar to 1.2bar
	Hard anodized	1×10 ⁻⁶ mbar to 1.2bar
Maximum ΔP	2 bar	
Compressed air pressure	4 ~ 6 Kg/cm ²	
Opening / Closing time without isolation	2 / 2 sec	
Standard Seal	Gate	Viton O-ring
	Bonnet	Viton O-ring
Actuator	Step Motor	
Weight	36 kg	
Mounting position	Horizontal (Cylinder Up) & vertical	
Options		
	a. Other material of Gate O-ring b. Heater	

	Connection	Type
Power	Power input	DB-9 male
Sensor	Sensor input Sensor power supply	DB-15 female
Interface	RS232	DB-25 female
Service	APC service	Mini USB type B female

Connect Port



APC software functions

Control via computer by using the APC software offers convenient functions

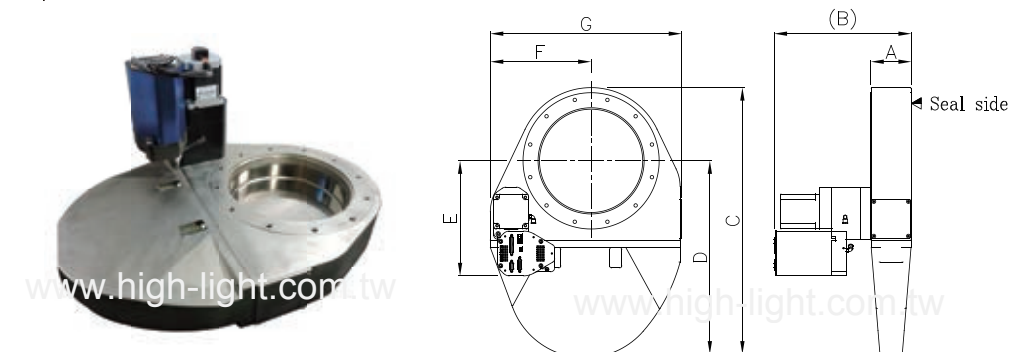
- | Set control tuning parameter : GAIN
- | Pressure and position control mode
- | Schedule test Mode => 1 cycle schedule
- | Set valve open/close speed
- | Report APC HW/SW version, serial and model number
- | Report valve cycles and run hours
- | Set tolerance scope of pressure
- | Cycles life and pressure control record
- | Controller parameter upload and download
- | Power failure protection
- | Screen Capture



APC PENDULUM VALVE

Control System

Nickel plated



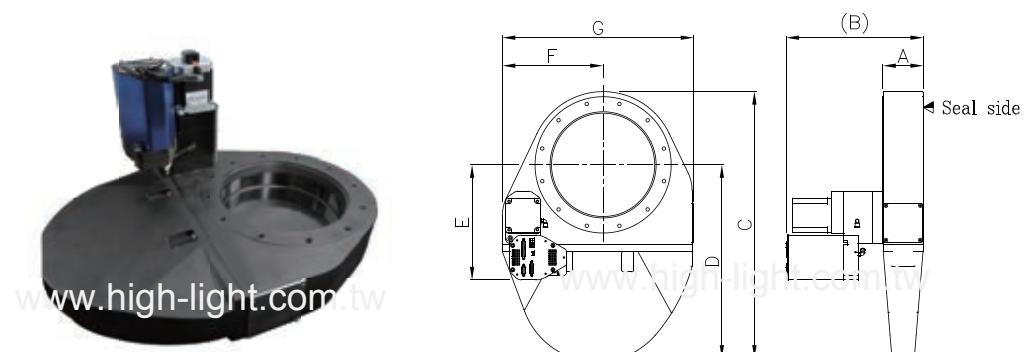
Model No.	Part No.	Port Dia.	Bonnet Seal	Flange O.D.	Bolt P.C.D.	Bolt Size
PVSV-A-ISO250-M	GP1142212CB	254	Viton	335	310	M10 x 15

Model No.	A	B	C	D	E	F	G
PVSV-A-ISO250-M	100	338	655	475	283	248	470

Standard Surface Treatment : nickel plated

Control System

Hard anodized



Model No.	Part No.	Port Dia.	Bonnet Seal	Flange O.D.	Bolt P.C.D.	Bolt Size
PVSV-HA-ISO250-M	GP1142213CB	254	Viton	335	310	M10 x 15

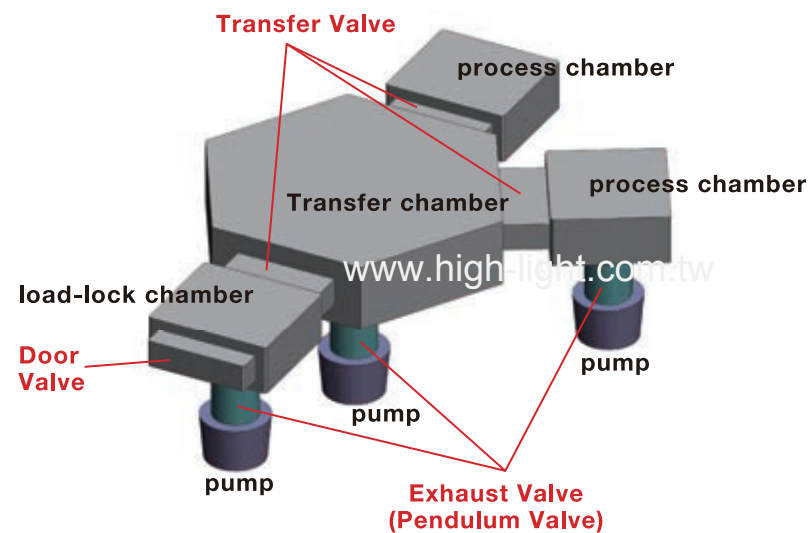
Model No.	A	B	C	D	E	F	G
PVSV-HA-ISO250-M	100	338	655	475	283	248	470

Surface Treatment : hard anodized

HTC vacuum rectangular valves use directly actuating technology. Valve body is appropriate size and compact design. All moving parts are located in atmospheric side that could reduce the particle occur in vacuum side and raise the life cycle. Other advantages include self-lock of gate seal upon air pressure loss, easy gate disassembly for maintenance etc.

Vacuum rectangular transfer valves are used widely in coaters of semiconductor, optoelectronics industry. Most of the valves are installed on load-lock chamber, between load-lock chamber and transfer chamber, also transfer chamber and process chamber. Enable transferring and processing being isolated for vacuum by the valves.

Example of vacuum rectangular valves install on cluster chamber



Design principle / feature

- Low vibration and low particles.
- Cam mechanism and spring enable sealing motion.
- Twin air-cylinders, single forcing shaft.
- Actuator shaft push auxiliary.
- Self-lock seal protection upon air pressure loss.
- Seal gate quick dismantling, easy for O-ring change.
- One million life cycles.

Body material

- Aluminum or Stainless Steel

Classify

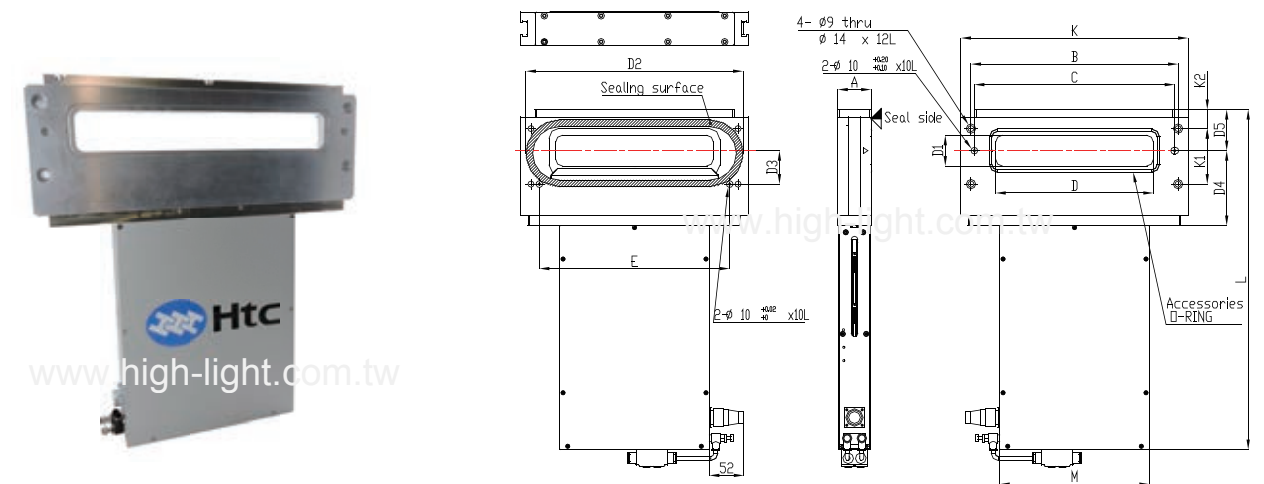
- Standard Rectangular Transfer valves
- Rectangular doors
- Large rectangular transfer valves
- Large rectangular doors

Body surface treatment

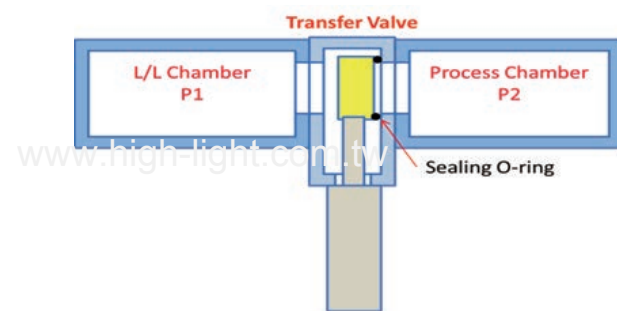
- Electrolytic polishing :
Aluminum or Stainless Steel
- Hard anodized : Aluminum

Rectangular transfer valve

Pneumatic, with bellows, Electrolytic polishing



Model No.	Body			Gate		Gate seal		Acturated time			Weight		Cycle life		Part NO.	
GRB-A-32222	A6061-T6			A6061-T6		Viton		open<=1 close<=1			15 kg		1 million		GR01A213	
GRB-A-46236	A6061-T6			A6061-T6		Viton		open<=1 close<=1			16 kg		1 million		GR02A213	
GRB-A-50336	A6061-T6			A6061-T6		Viton		open<=1 close<=1			21 kg		2 million		GR03A213	
GRB-A-56496	A6061-T6			A6061-T6		Viton		open<=2 close<=3.5			29 kg		1 million		GR04A213	
GRB-S-32222	304S.S.			304S.S.		Viton		open<=1 close<=1			20 kg		1 million		GR01A113	
GRB-S-46236	304S.S.			304S.S.		Viton		open<=1 close<=1			22 kg		1 million		GR02A113	
GRB-S-50336	304S.S.			304S.S.		Viton		open<=1 close<=1			34 kg		2 million		GR03A113	
GRB-S-56496	304S.S.			304S.S.		Viton		open<=2 close<=3.5			49 kg		1 million		GR04A113	
Model No.	D	D1	D2	D3	D4	D5	A	B	C	E	H	K	K1	K2	L	M
GRB-A-32222	222	32	311	50	105	61.5	50	310	300	285	49	340	83	28.5	501.5	224
GRB-A-46236	236	46	325	50	112	61.5	50	310	300	285	49	340	83	28.5	508.5	224
GRB-A-50336	336	50	422	50	112	63	60	410	400	385	59	440	83	30	475	250
GRB-A-56496	496	56	540	61	117.5	66	70	570	560	545	69	600	94	33	513.5	272
GRB-S-32222	222	32	311	50	105	61.5	50	310	300	285	49	340	83	28.5	501.5	224
GRB-S-46236	236	46	325	50	112	61.5	50	310	300	285	49	340	83	28.5	508.5	224
GRB-S-50336	336	50	422	50	112	63	60	410	400	385	59	440	83	30	475	250
GRB-S-56496	496	56	540	61	117.5	66	70	570	560	545	69	600	94	33	513.5	272



Note

- * Differential pressure on the gate
 Forward and reverse pressure difference definitions:
 Forward pressure difference ($P1 > P2$) = $P1 - P2$
 Reverse pressure difference ($P1 < P2$) = $P2 - P1$
- ** Differential pressure at opening = $P1 - P2 < 10$ mbar

Accessories



32x222 M8x50L
 46x236 M8x50L
 50x336 M8x60L
 46x496 M8x70L



PIN
 $\Phi 10 \times 15L$



Clamp single
 clamp AL
 Part No: 2121A211



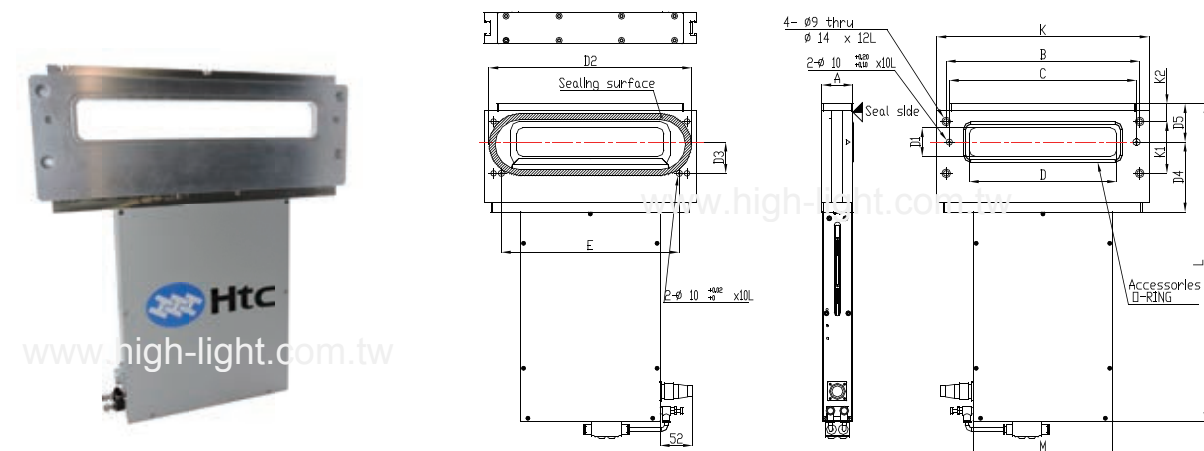
Fixture for maintenance
 Part No: GR03A213323

Rectangular transfer valve Technical Data (for Electrolytic polishing valve body)

Spindle sealing	Bellows	
Leak rates	Body	1×10^{-9} mbar. l/s
	Seat	1×10^{-9} mbar. l/s
Surface Treatment (Body)	Electrolytic polishing	
Bakeable Temperature	Body	$< 90^{\circ}\text{C}$
	Driving module	$< 60^{\circ}\text{C}$
Differential pressure on the gate (Note*)	Forward pressure difference	≤ 1.2 bar
	Reverse pressure difference	≤ 1.0 bar
Differential pressure at opening (Note**)	< 10 mbar	
Pressure Range	1×10^{-8} mbar to 1.0 bar	
Driving pressure	$5 \sim 7$ Kg/cm ²	
Standard Seal	Gate	Viton O'Ring
Position sensor (Standard)	DC4-24(V) or AC4-240(V), Amps: 5-40 mA	
Solenoid (Optional)	DC24(V) ,AC24(V),AC110(V),AC220(V)	
Mounting position	Actuator up, down	

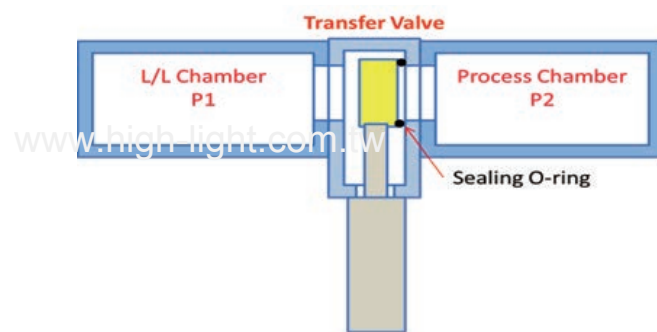
Rectangular transfer valve

Pneumatic, with bellows, Hard anodized



Model No.	Body	Gate	Gate seal	Acturated time	Weight	Cycle Life	Part NO.
GRB-HA-32222	A6061-T6	A6061-T6	Viton	open ≤ 1 close ≤ 1	15 kg	1 million	GR01A713
GRB-HA-46236	A6061-T6	A6061-T6	Viton	open ≤ 1 close ≤ 1	16 kg	1 million	GR02A713
GRB-HA-50336	A6061-T6	A6061-T6	Viton	open ≤ 1 close ≤ 1	21 kg	2 million	GR03A713
GRB-HA-56496	A6061-T6	A6061-T6	Viton	open ≤ 2 close ≤ 3.5	29 kg	1 million	GR04A713

Model No.	D	D1	D2	D3	D4	D5	A	B	C	E	H	K	K1	K2	L	M
GRB-HA-32222	222	32	311	50	105	61.5	50	310	300	285	49	340	83	28.5	501.5	224
GRB-HA-46236	236	46	325	50	112	61.5	50	310	300	285	49	340	83	28.5	508.5	224
GRB-HA-50336	336	50	422	50	112	63	60	410	400	385	59	440	83	30	475	250
GRB-HA-56496	496	56	540	61	117.5	66	70	570	560	545	69	600	94	33	513.5	272



Note

- * Differential pressure on the gate
 Forward and reverse pressure difference definitions:
 Forward pressure difference ($P1 > P2$) = $P1 - P2$
 Reverse pressure difference ($P1 < P2$) = $P2 - P1$
- ** Differential pressure at opening = $P1 - P2 < 10$ mbar

Accessories



32x222 M8x50L
 46x236 M8x50L
 50x336 M8x60L
 46x496 M8x70L



PIN
 $\Phi 10 \times 15L$



Clamp single
 clamp AL
 Part No: 2121A211

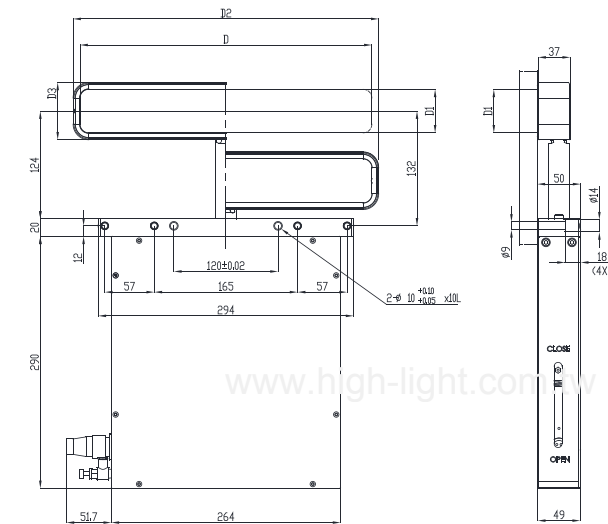


Fixture for maintenance
 Part No: GR03A213323

Rectangular transfer valve Technical Data (for hard anodized vavle body)

Spindle sealing	Bellows	
Leak rates	Body	5×10^{-6} mbar. l/s
	Seat	5×10^{-5} mbar. l/s
Surface Treatment (Body)	Hard anodized	
Bakeable Temperature	Body	$< 90^{\circ}\text{C}$
	Driving module	$< 60^{\circ}\text{C}$
Differential pressure on the gate (Note*)	Forward pressure difference	≤ 1.2 bar
	Reverse pressure difference	≤ 1.0 bar
Differential pressure at opening (Note**)	< 10 mbar	
Pressure Range	1×10^{-6} mbar to 1.0 bar	
Driving pressure	$5 \sim 7$ Kg/cm ²	
Standard Seal	Gate	Viton O'Ring
Position sensor (Standard)	DC4-24(V) or AC4-240(V), Amps: 5-40 mA	
Solenoid (Optional)	DC24(V), AC24(V), AC110(V), AC220(V)	
Mounting position	Actuator up, down	

Rectangular doors valve



Model No.	D	D1	D2	D3	Gate seal	Gate	Acturated time	Weight	Part NO.
GR-A-32222-D	222	32	239	48	Viton	A6061-T6	open ≤ 1 close ≤ 1	9 kg	GR014514
GR-A-46236-D	236	46	253	62	Viton	A6061-T6	open ≤ 1 close ≤ 1	9.5 kg	GR024514
GR-A-50336-D	336	50	352	66	Viton	A6061-T6	open ≤ 1 close ≤ 1	10 kg	GR034514
GR-A-56496-D	496	56	512	72	Viton	A6061-T6	open ≤ 2 close ≤ 2	11.5 kg	GR044514
GR-S-32222-D	222	32	239	48	Viton	304S.S.	open ≤ 1 close ≤ 1	11 kg	GR014614
GR-S-46236-D	236	46	253	62	Viton	304S.S.	open ≤ 1 close ≤ 1	12 kg	GR024614
GR-S-50336-D	336	50	352	66	Viton	304S.S.	open ≤ 1 close ≤ 1	14 kg	GR034614
GR-S-56496-D	496	56	512	72	Viton	304S.S.	open ≤ 2 close ≤ 2	18 kg	GR044614

Note * L : Linkage mechanism * B : Ball groove mechanism

Size Type		Shaft seal	HV VALVE												UHV VALVE								
			KF 10	KF 16	KF 25	KF 40	KF 50	ISO 63	ISO 80	ISO 100	ISO 160	ISO 200	ISO 250	ISO 320	CF 16	CF 35	CF 63	CF 100	CF 150	CF 200	CF 275	CF 300	
VACUUM POPPET VALVES																							
ANGLE VALVE (Manual & Pneumatic)		Bellocs		●	●	●	●	●	●							●	●	●					
		O-ring		●	●	●	●	●	●							●	●	●					
LARGE ANGLE VALVE (Manual & Pneumatic)		Bellocs								●	●	●	●					●	●	●			
		O-rings								●	●	●	●					●	●	●			
Y-INLINE VALVE (Manual & Pneumatic)		Bellocs		●	●	●	●	●	●	●						●	●	●	●				
		O-rings		●	●	●	●	●	●	●						●	●	●					
Z-INLINE VALVE (Manual & Pneumatic)		Bellocs		●	●	●	●	●	●	●						●	●	●					
		O-rings		●	●	●	●	●								●	●	●					
Formed Bellocs Swal stainless valve (Pneumatic)		Bellocs				●	●																
ALUMINUM BLOCK VALVES																							
Pneumatic All-in-one angle valve		Bellocs		●	●	●																	
Pneumatic aluminum angle valve		Bellocs		●	●	●	●	●															
		O-rings		●	●	●																	
Manual aluminum angle valve		Bellocs		●	●	●	●																
		O-rings		●	●	●	●																
BUTTERFLY VALVES																							
Manual aluminum angle valve		O-rings			●	●	●	●		●													
Pneumatic butterfly valve		O-rings			●	●	●	●		●	●	●	●					●					
APC butterfly Valve		O-rings			●	●	●	●		●	●							●					
BALL VALVES																							
Manual ball valves		Teflon-ring		●	●	●	●		●	●													
Pneumatic butterfly valve		Teflon-ring			●	●	●		●	●													
Motor Drive Ball Valve		Teflon-ring			●	●	●																
CHECK VALVES																							
Check Valve						●																	
VENT VALVES																							
Vent Valve		O-ring	●	●	●	●									●								
BAKEABLE ALL- METAL VALVES																							
ANGLE VALVE		Bellocs													●	●	●						
straight through valve		Bellocs														●	●						
GATE VALVES																							
UHV gate valve (L type)* ¹ (Manual & Pneumatic)		Bellocs														●					●	●	
UHV gate valve (B type)* ² (Manual & Pneumatic)		Bellocs															●	●	●	●			
UHV 3-position gate valve (B type)* ²		Bellocs															●	●	●	●			
HV gate valve (L type)* ¹ (Manual & Pneumatic)		Bellocs				●	●					●	●		●	●							
HV gate valve (B type)* ² (Manual & Pneumatic)		Bellocs					●			●	●	●											
HV 3-position gate valve (B type)* ²		Bellocs					●			●	●	●											
HV gate valve (Aluminum body) (Pneumatic)		O-ring											●										
PENDULUM VALVES																							
Pneumatic Pendulum Valve		O-ring									●	●											
3-position pneumatic Pendulum Valve		O-ring											●										
APC Pendulum Valve		O-ring											●										

Note * EP : Electrolytic polishing surface treatment * Hard anodized : Hard anodized surface treatment

Type \ Size	Shaft seal system	Standard (S.S. body / gate)				Standard (A L body / gate)				Customized
		32 x 222	46 x 236	50 x 336	56 x 496	32 x 222	46 x 236	50 x 336	56 x 496	50 ~ 200 x 2000 max.
TRANSFER VALVES AND DOORS										
Rectangular Transfer valve (EP)	Bellows	●	●	●	●	●	●	●	●	upon request
Rectangular Transfer valve (Hard anodized)	Bellows					●	●	●	●	
Door valve(EP)		●	●	●	●	●	●	●	●	

VACUUM POPPET VALVES



ANGLE VALVE
Bellows



ANGLE VALVE
O-ring



LARGE ANGLE VALVE
Bellows



LARGE ANGLE VALVE
O-ring



Y-INLINE VALVE
Bellows



Y-INLINE VALVE
O-ring



Z-INLINE VALVE
Bellows



Z-INLINE VALVE
O-ring

ALUMINUM BLOCK VALVES



Formed Bellocs
Swal stainless valve
Bellows



Pneumatic All-in-one
angle valve
Bellows



Pneumatic aluminum
angle valve
Bellows



Pneumatic aluminum
angle valve
O-ring



Manual aluminum
angle valve
Bellows



Manual aluminum
angle valve
O-ring



Pneumatic
butterfly valve
O-ring



APC
butterfly Valve
O-ring

BALL VALVES



Manual ball valves
Teflon-ring



Pneumatic
butterfly valve
Teflon-ring



Motor Drive
Ball Valve
Teflon-ring



Check Valve



Vent Valve



ANGLE VALVE
Bellows



straight
through valve
Bellows

CHECK VALVES

VENT VALVES

BAKEABLE ALL- METAL VALVES

GATE VALVES



UHV gate valve
(L type)*1
Bellows



UHV gate valve
(B type)*2
Bellows



UHV 3-position gate
valve (B type)*2
Bellows



HV gate valve
(L type)*1
Bellows



HV gate valve
(B type)*2
Bellows



HV 3-position gate
valve (B type)*2
Bellows



HV gate valve
(Aluminum body)
O-ring

PENDULUM VALVES

TRANSFER VALVES AND DOORS



Pneumatic
Pendulum Valve
O-ring



3-position pneumatic
Pendulum Valve
O-ring



APC
Pendulum Valve
O-ring



Rectangular
Transfer valve (EP)
Bellows



Rectangular Transfer
valve(Hard anodized)
Bellows



Door valve(EP)
Bellows

The Scroll Vacuum Pump is the right combination of small size, high performance and low cost. A compact, reliable vacuum pump designed for use on clean processes. Not suitable for use with explosives, flammable, toxic, corrosive substances or particles that contain powders.

To pump condensable vapors or to pump down from atmospheric pressure in a humid environment (for example, if relative humidity exceeds 60%), you must use the gas ballast that comes with the pump. This pumps is air cooled with an hour counter. Light, oil free and little routine maintenance.

ISP 250C



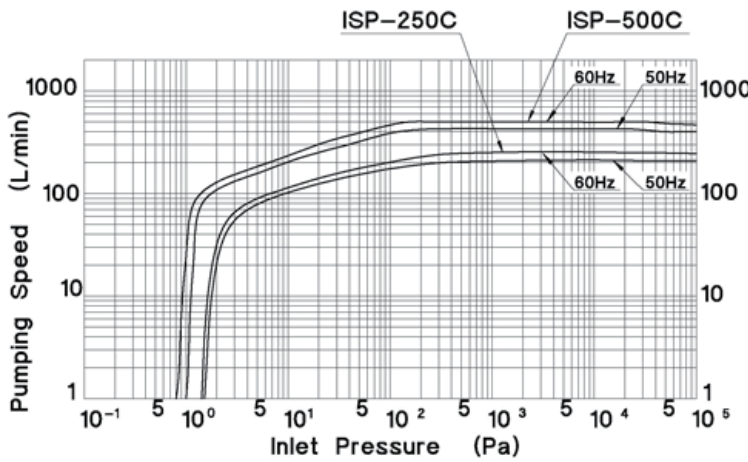
Features

- Low ultimate pressure
- High pumping speed
- Contamination Free, no oil maintenance or disposal
- Cost-effective ready to use
- Maximum inlet pressure to 760 Torr

Applications

- Scanning electron microscopes
- Ion implanters (beamline and end stations)
- General clean pumping applications
- Sputtering
- Turbo pump backing
- Rare gas re-circulation
- Gel drying
- Rotary evaporation
- Centrifugal concentration
- Vacuum ovens
- Glove boxes
- Ideal for chamber roughing

ISP 500C



Safety precautions

This vacuum pumping system is suitable for clean processes only Do not use toxic, explosive, flammable or corrosive substances or substances which contain chemicals, solvents or particles. The seller will not perform maintenance work on pumps which have used special gases or other hazardous substances.

Use at ambient temperature in the range of 5°C to 40°C.

Technical data

	ISP-250C		ISP-500C	
Displacement	50 Hz	15m ³ h ⁻¹ / 8.8 ft ³ min ⁻¹	50 Hz	30m ³ h ⁻¹ / 17.6 ft ³ min ⁻¹
	60 Hz	18m ³ h ⁻¹ / 10.6 ft ³ min ⁻¹	60 Hz	36m ³ h ⁻¹ / 21.2 ft ³ min ⁻¹
Peak pumping speed	50 Hz	12.5m ³ h ⁻¹ / 10.6 ft ³ min ⁻¹	50 Hz	25m ³ h ⁻¹ / 16.1 ft ³ min ⁻¹
	60 Hz	15m ³ h ⁻¹ / 8.8 ft ³ min ⁻¹	60 Hz	30m ³ h ⁻¹ / 17.6 ft ³ min ⁻¹
	Ultimate total vacuum	1.6x10 ⁻² mbar / 1x10 ⁻² Torr	Ultimate total vacuum	1x10 ⁻² mbar / 7.5x10 ⁻³ Torr
	Inlet connection	NW25	Inlet connection	NW40
	Outlet connection	NW16	Outlet connection	NW25
	Motor power	0.4kW	Maximum allowed inlet pressure	1000 mbar
			Maximum allowed outlet pressure	1150 mbar
			Motor power	0.6kW
Electrical supply	1-phase, 50 Hz	200 / 230V	1-phase, 50 Hz	100 / 200 / 230V
	1-phase, 60 Hz	110 / 115V		
	Noise level	58db (A)	1-phase, 60 Hz	100 / 115 / 200 / 230V
	vibration	1.5mms ⁻¹		
	Enclosure rating	IP44	1-phase, 50 Hz	200 / 380 / 415V
	Leak tightness (static)	10 ⁻⁴ mbar l s ⁻¹		
	Operating temperature range	5 to 40°C / 41 to 104°C	1-phase, 60 Hz	200 / 208 / 230 / 460V
Recommended contactor rating, 3-ph			200-230V	5A
			380-460V	3A
			Enclosure rating	IP44
			Leak tightness (static)	10 ⁻⁴ mbar l s ⁻¹
Weight			Operating temperature range	5 to 40°C / 41 to 104°C
	1-phase pump	25kg / 55lbs	3-phase pump	38kg / 84lbs
			1-phase pump	44kg / 97lbs