

# 07 GATE VALVE

|                                                   |      |
|---------------------------------------------------|------|
| Vacuum gate valves manufacturers.....             | 7-4  |
| Gate Valve(Technical Data) .....                  | 7-5  |
| Linkage mechanism.....                            | 7-6  |
| Ball groove mechanism .....                       | 7-6  |
| Numbering System .....                            | 7-7  |
| UHV-gate valves (unlubricated mechanism) .....    | 7-8  |
| CF Flange-mini Manual UHV .....                   | 7-9  |
| CF Flange-mini Pneumatic UHV .....                | 7-9  |
| CF Flange-large Pneumatic UHV .....               | 7-10 |
| CF Flange-Ball Manual .....                       | 7-11 |
| CF Flange-Ball Pneumatic.....                     | 7-12 |
| 3-Position-Throttle Ball UHV.....                 | 7-13 |
| HV Gate Valve (Linkage mechanism).....            | 7-15 |
| KF Flange-mini Manual HV .....                    | 7-16 |
| KF Flange-mini Pneumatic HV .....                 | 7-16 |
| ISO Flange-large Pneumatic HV .....               | 7-17 |
| ISO Flange Manual HV .....                        | 7-18 |
| ISO Flange Pneumatic HV .....                     | 7-19 |
| 3-Position Throttle Linkage mechanism HV .....    | 7-20 |
| 3-Position Throttle ISO HV .....                  | 7-21 |
| Limit Switch UHV Gate Valve .....                 | 7-22 |
| Limit Switch CF-Mini UHV .....                    | 7-23 |
| Limit Switch CF Large UHV .....                   | 7-24 |
| Limit Switch CF UHV .....                         | 7-25 |
| Limit Switch HV Gate Valve.....                   | 7-26 |
| Limit Switch KF-Mini HV .....                     | 7-27 |
| Limit Switch ISO Large HV .....                   | 7-28 |
| Limit Switch ISO Ball HV .....                    | 7-29 |
| Gate valve kit .....                              | 7-30 |
| HV Aluminum Gate Valve.....                       | 7-31 |
| Pendulum valves .....                             | 7-32 |
| Pendulum-Nickel plated.....                       | 7-33 |
| Pendulum-Hard anodized.....                       | 7-33 |
| 3-Position Pendulum valves .....                  | 7-34 |
| 3-Position Pendulum-Nickel plated .....           | 7-35 |
| 3-Position Pendulum- Hard anodized .....          | 7-35 |
| APC Pendulum valves .....                         | 7-36 |
| APC Pendulum- Nickel plated .....                 | 7-38 |
| APC Pendulum-Hard anodized .....                  | 7-39 |
| Transfer valves and doors .....                   | 7-40 |
| Rectangular transfer-Electrolytic polishing ..... | 7-41 |
| Rectangular transfer-Hard anodized .....          | 7-43 |
| Rectangular doors valve.....                      | 7-45 |



# GATE VALVE

## GATE VALVES

### *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**

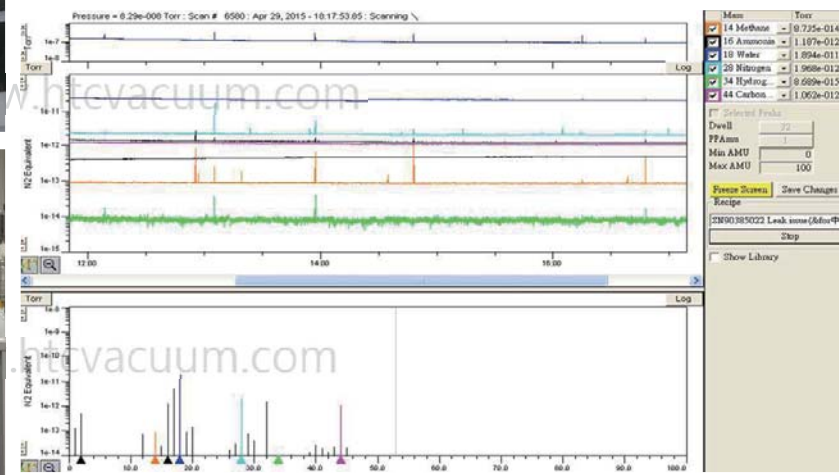


Htc vacuum gate valve are available with various options to allow you to select exactly the features you need for your applications. You can add the roughing and gauge ports on the basic valve style.

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.



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

| Type \ Size                                         | Shaft sea | 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 50 | CF 63 | CF 100 | CF 150 | CF 200 | CF 275 | CF 300 |   |
| GATE VALVES                                         |           |          |       |       |       |       |        |        |         |         |         |         |         |           |       |       |       |        |        |        |        |        |   |
| UHV gate valve (L type)<br>(Manual & Pneumatic)     | Bellows   |          |       |       |       |       |        |        |         |         |         |         |         |           |       | ●     | ●     |        |        |        |        | ●      | ● |
| UHV gate valve (B type)<br>(Manual & Pneumatic)     | Bellows   |          |       |       |       |       |        |        |         |         |         |         |         |           |       |       | ●     | ●      | ●      | ●      | ●      |        |   |
| UHV 3-position gate valve (B type)<br>(Pneumatic)   | Bellows   |          |       |       |       |       |        |        |         |         |         |         |         |           |       |       | ●     | ●      | ●      | ●      |        |        |   |
| UHV gate valve limit switch (L type)<br>(Pneumatic) | Bellows   |          |       |       |       |       |        |        |         |         |         |         |         |           |       | ●     | ●     |        |        |        |        | ●      | ● |
| UHV gate valve limit switch (B type)<br>(Pneumatic) | Bellows   |          |       |       |       |       |        |        |         |         |         |         |         |           |       |       | ●     | ●      | ●      | ●      |        |        |   |
| HV gate valve (L type)<br>(Manual & Pneumatic)      | Bellows   |          |       |       | ●     | ●     |        |        |         |         |         |         | ●       | ●         |       |       |       |        |        |        |        |        |   |
| HV gate valve (B type)<br>(Manual & Pneumatic)      | Bellows   |          |       |       |       |       | ●      |        | ●       | ●       | ●       | ●       | ●       |           |       |       |       |        |        |        |        |        |   |
| HV 3-position gate valve(B type)<br>(Pneumatic)     | Bellows   |          |       |       |       |       | ●      |        | ●       | ●       | ●       |         |         |           |       |       |       |        |        |        |        |        |   |
| HV gate valve limit switch (L type)<br>(Pneumatic)  | Bellows   |          |       |       | ●     | ●     |        |        |         |         |         |         | ●       | ●         |       |       |       |        |        |        |        |        |   |
| HV gate valve limit switch (B type)<br>(Pneumatic)  | Bellows   |          |       |       |       |       | ●      |        | ●       | ●       | ●       |         |         |           |       |       |       |        |        |        |        |        |   |
| HV gate valve (Aluminum body)<br>(Pneumatic)        | O-ring    |          |       |       |       |       |        |        |         |         |         |         | ●       |           |       |       |       |        |        |        |        |        |   |
| PENDULUM VALVES                                     |           |          |       |       |       |       |        |        |         |         |         |         |         |           |       |       |       |        |        |        |        |        |   |
| Pneumatic Pendulum Valve                            | O-ring    |          |       |       |       |       |        |        |         |         |         | ●       | ●       |           |       |       |       |        |        |        |        |        |   |
| 3-position pneumatic Pendulum Valve                 | O-ring    |          |       |       |       |       |        |        |         |         |         |         | ●       |           |       |       |       |        |        |        |        |        |   |
| APC pneumatic Pendulum Valve                        | O-ring    |          |       |       |       |       |        |        |         |         |         | ●       | ●       |           |       |       |       |        |        |        |        |        |   |

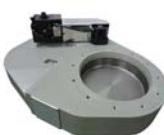
Note \*EP: Electrolytic polishing surface treatment \*Hard anodized: Hard anodized surface treatment

| Type \ Size                                | Shaft seal system | Standard (S.S. body / gate) |        |        |        | Standard (AL body / gate) |        |        |        | Customized      |  |
|--------------------------------------------|-------------------|-----------------------------|--------|--------|--------|---------------------------|--------|--------|--------|-----------------|--|
|                                            |                   | 32x222                      | 46x236 | 50x336 | 56x496 | 32x222                    | 46x236 | 50x336 | 56x496 | 50~200x2000 max |  |
| TRANSFER VALVES AND DOORS                  |                   |                             |        |        |        |                           |        |        |        |                 |  |
| Rectangular Transfer valve(EP)             | Bellows           | ●                           | ●      | ●      | ●      | ●                         | ●      | ●      | ●      | upon request    |  |
| Rectangular Transfer valve (Hard anodized) | Bellows           |                             |        |        |        | ●                         | ●      | ●      | ●      |                 |  |
| Door valve(EP)                             |                   | ●                           | ●      | ●      | ●      | ●                         | ●      | ●      | ●      |                 |  |



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

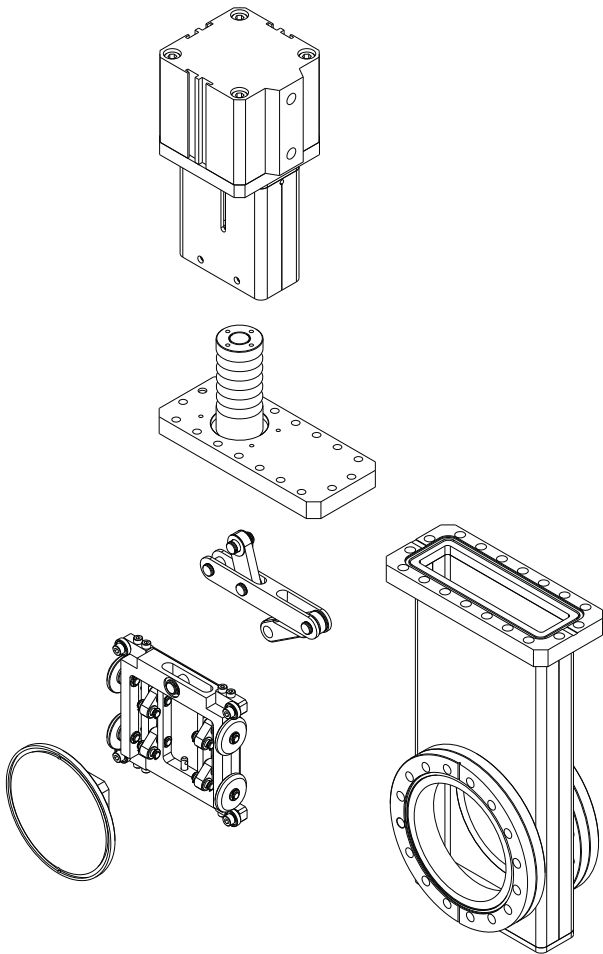
| GATE VALVES                                                                         |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|    |    |    |    |    |    |
| CF Manually UHV (L type)<br>Bellows                                                 | CF Manually UHV (B type)<br>Bellows                                                 | CF Pneumatic UHV (L type)<br>Bellows                                                | CF Pneumatic UHV (L type)<br>Bellows                                                | CF Pneumatic UHV (B type)<br>Bellows                                                  | CF 3-position pneumatic UHV (B type)<br>Bellows                                       |
| GATE VALVES                                                                         |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |
|    |    |    |    |    |    |
| KF Manually HV (L type)<br>Bellows                                                  | ISO Manually HV (B type)<br>Bellows                                                 | KF Pneumatic HV (L type)<br>Bellows                                                 | ISO Pneumatic HV (L type)<br>Bellows                                                | ISO Pneumatic HV (B type)<br>Bellows                                                  | ISO 3-position pneumatic HV (B type)<br>Bellows                                       |
| GATE VALVES                                                                         |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |
|  |  |  |  |  |  |
| CF limit switch pneumatic UHV (L type)<br>Bellows                                   | CF limit switch pneumatic UHV (L type)<br>Bellows                                   | CF limit switch pneumatic UHV (B type)<br>Bellows                                   | KF limit switch pneumatic HV (L type)<br>Bellows                                    | ISO limit switch pneumatic HV (L type)<br>Bellows                                     | ISO limit switch pneumatic HV (B type)<br>Bellows                                     |

| GATE VALVES                                                                         | PENDULUM VALVES                                                                     |                                                                                     |                                                                                     | TRANSFER VALVES AND DOORS                                                            |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |  |  |  |
| HV Pneumatic<br>(Alumium body)                                                      | Pneumatic<br>Pendulum Valve                                                         | 3-position<br>pneumatic<br>Pendulum Valve                                           | APC pneumatic<br>Pendulum Valve                                                     | Transfer<br>valve EP                                                                 | Transfer valve<br>Hard anodized                                                       | Door valve EP                                                                         |
| O-ring                                                                              | O-ring                                                                              | O-ring                                                                              | O-ring                                                                              | Bellows                                                                              | Bellows                                                                               | Bellows                                                                               |

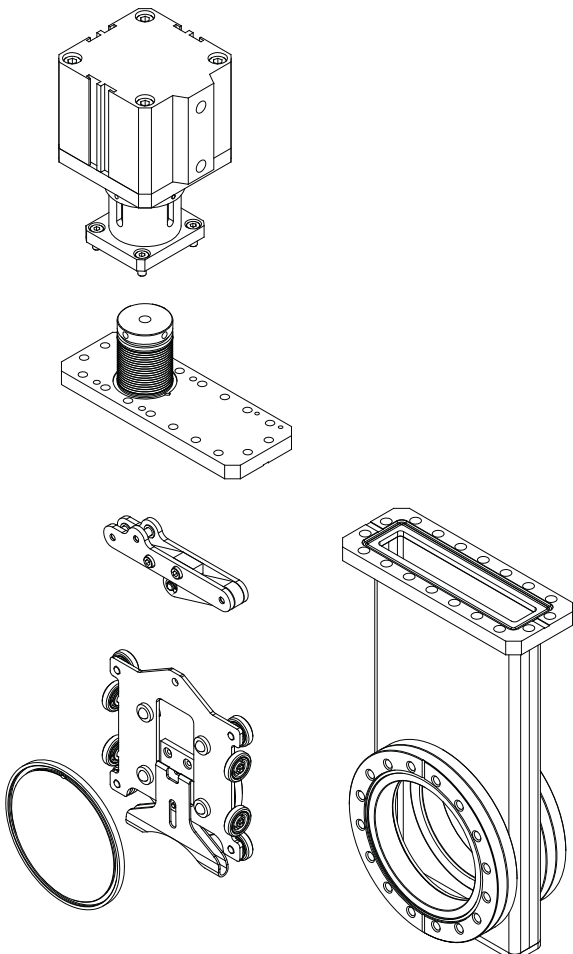


➔ Gate Valve(Technical Data)

Linkage mechanism



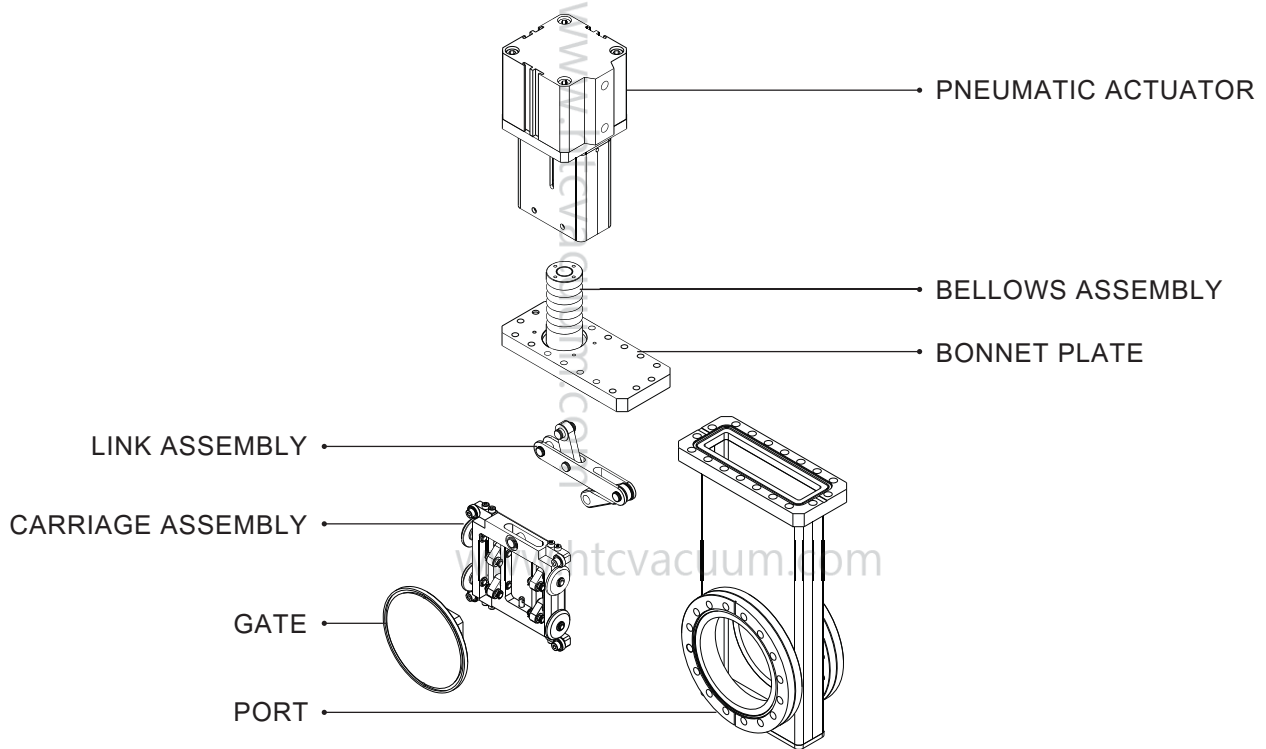
Ball groove mechanism



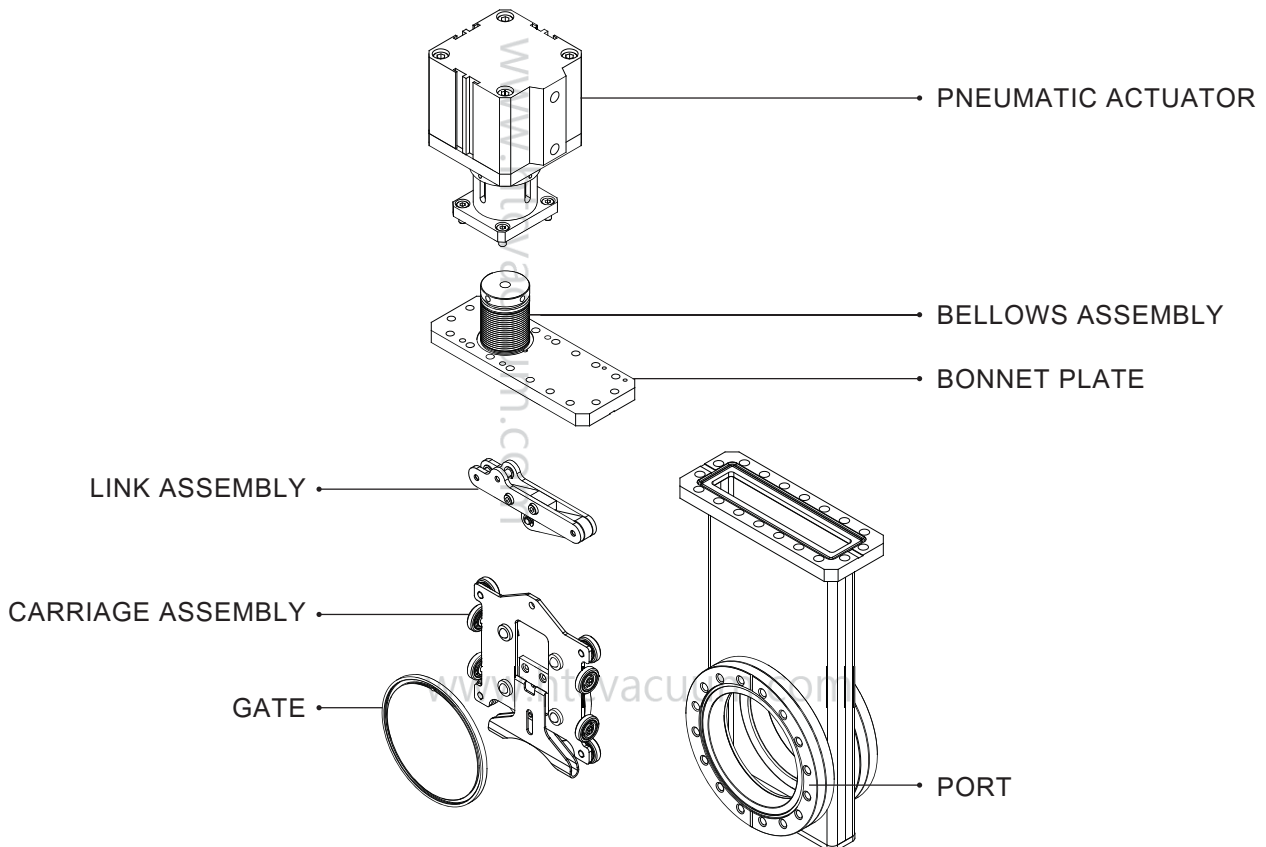
| Body Size(Type) | Standard Flange O.D.(Weight) |            |          | Air Pressure | Actuated Frequency |
|-----------------|------------------------------|------------|----------|--------------|--------------------|
|                 | ISO (kg)                     | CF(kg)     | KF(kg)   |              |                    |
| 1.5" (L)        | *                            | 69.5 (2.6) | 50 (2.6) | 4~6          | 2 seconds          |
| 2" (L)          | *                            | 86 (3.6)   | 75 (4)   | 4~6          | 2 seconds          |
| 2.5" (B)        | 130 (7)                      | 113.6 (7)  | *        | 4~6          | 3 seconds          |
| 4" (B)          | 165 (10)                     | 151.6 (11) | *        | 4~6          | 3 seconds          |
| 6" (B)          | 255 (18)                     | 202.5 (17) | *        | 4~6          | 5 seconds          |
| 8" (B)          | 285 (27)                     | 253.2 (26) | *        | 4~6          | 5 seconds          |
| 10" (L)         | 335 (59)                     | 336.5 (63) | *        | 4~6          | 5 seconds          |
| 12" (L)         | 425 (88)                     | 355.6 (77) | *        | 4~6          | 7 seconds          |



## ➔ Linkage mechanism

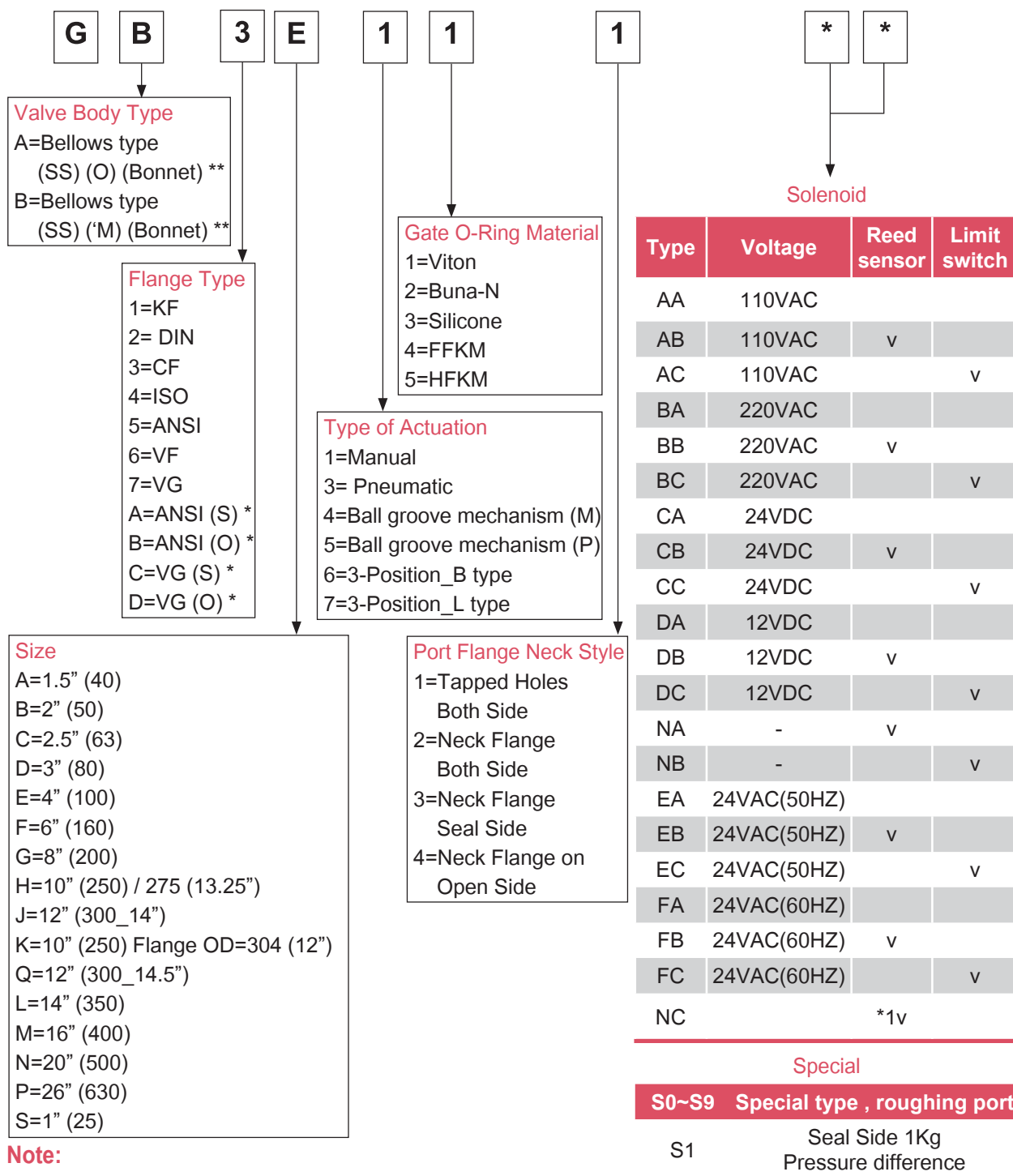


## ➔ Ball groove mechanism



## ➔ Numbering System

This numbering system was developed to insure the valve supplied is exactly what you need. It addresses questions concerning available features and options for the valve, and incorporates that information in the valve number.



### Note:

13.25" \_14" \_12" \_14.5" are the sizes CF/CR Flanges.

### Note:

- \* ANSI / VG (S) is flange with o-ring on seal side.
- \* ANSI / VG (O) is flange with o-ring on open side.
- \*\* Bellows type (SS) (M) is bonnet with Metal seal.
- \*\* Bellows type (SS) (O) is bonnet with o-ring seal.

## UHV Gate Valve (Unlubricated mechanism)

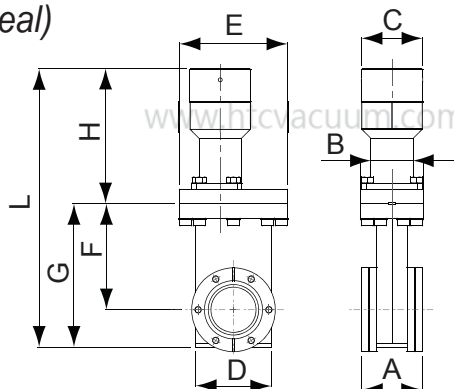
|                                                            |                                |                    |                                                                                                                        |
|------------------------------------------------------------|--------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------|
| Material                                                   | Body                           |                    | 304 S.S.                                                                                                               |
|                                                            | Carriage                       |                    | 304 S.S.                                                                                                               |
|                                                            | Gate                           |                    | 304 S.S.                                                                                                               |
|                                                            | Bellows                        |                    | AM350                                                                                                                  |
| Cycle life                                                 | size under 4" (included)       |                    | 100,000                                                                                                                |
|                                                            | size above 4"                  |                    | 50,000                                                                                                                 |
| Helium leak rates at 1 atm differential                    |                                |                    | < 5×10 <sup>-10</sup> mbar. l /sec for gasket seal                                                                     |
| Bake Temperature                                           | Valve body (metal bonnet seal) | Open               | 200°C                                                                                                                  |
|                                                            |                                | Closed             | 150°C                                                                                                                  |
|                                                            | Actuator                       | Pneumatic          | ≤ 80 °C                                                                                                                |
|                                                            |                                | Manual             | ≤ 200°C                                                                                                                |
| Pressure Range (mbar)                                      |                                |                    | 1x10 <sup>-10</sup> ~1000                                                                                              |
| Maximum ΔP (mbar)                                          |                                |                    | 27 before opening                                                                                                      |
| Standard Seal                                              | Gate                           | Viton O-ring       |                                                                                                                        |
|                                                            | Bonnet                         | OFHC copper gasket |                                                                                                                        |
| Actuator                                                   |                                |                    | Pneumatic or Manual                                                                                                    |
| Compressed air supply<br>Tube connection<br>Pressure range |                                |                    | Ø6 mm<br>4~6 Kg/cm <sup>2</sup> (overpressure)                                                                         |
| Surface Treatment                                          |                                |                    | Scotch Polished                                                                                                        |
| Options                                                    |                                |                    | a. Position indicator<br>c. Roughing port<br>b. Pneumatic control solenoid valve<br>d. Other material Gate O-ring seal |



## ➤ UHV Gate Valve (Linkage mechanism)

### CF Flange(Mini)

Manual series (with Bellows, Metal Bonnet Seal)



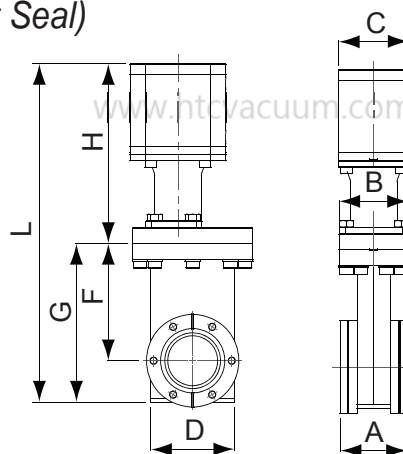
| Model No.     | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|---------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVB-SS-CF35-M | GB3A111   | 37.5      | Metal       | 69.5        | 58.7        | M6*6            | 170            | 10           |
| GVB-SS-CF50-M | GB3B111   | 50        | Metal       | 86          | 72.4        | M8*8            | 210            | 13           |

| Model No.     | Parts No. | A    | B  | C  | D  | E   | F   | G   | H   | L   |
|---------------|-----------|------|----|----|----|-----|-----|-----|-----|-----|
| GVB-SS-CF35-M | GB3A111   | 45.4 | 52 | 51 | 63 | 90  | 88  | 119 | 113 | 232 |
| GVB-SS-CF50-M | GB3B111   | 56   | 56 | 51 | 81 | 104 | 123 | 167 | 129 | 296 |

## ➤ UHV Gate Valve (Linkage mechanism)

### CF Flange(Mini)

Pneumatic series (with Bellows, Metal Bonnet Seal)



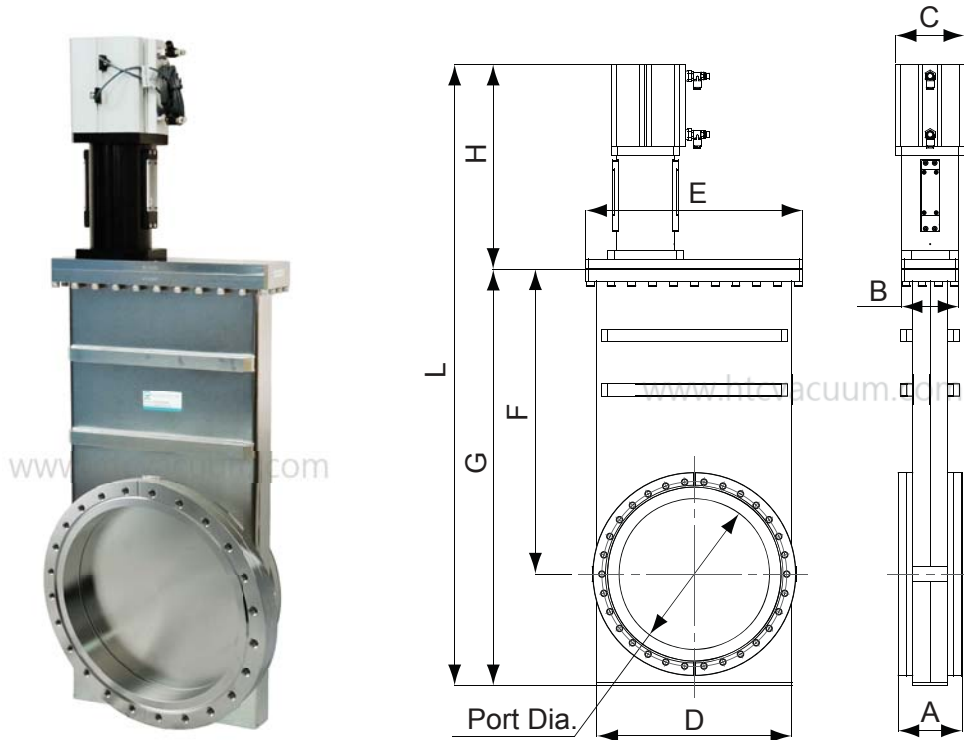
| Model No.     | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|---------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVB-SS-CF35-P | GB3A311   | 37.5      | Metal       | 69.5        | 58.7        | M6*6            | 170            | 10           |
| GVB-SS-CF50-P | GB3B311   | 50        | Metal       | 86          | 72.4        | M8*8            | 210            | 13           |

| Model No.     | Parts No. | A    | B  | C  | D  | E   | F   | G   | H   | L   |
|---------------|-----------|------|----|----|----|-----|-----|-----|-----|-----|
| GVB-SS-CF35-P | GB3A311   | 45.4 | 52 | 53 | 63 | 90  | 88  | 119 | 135 | 254 |
| GVB-SS-CF50-P | GB3B311   | 56   | 56 | 53 | 81 | 104 | 123 | 167 | 154 | 321 |

## 

### **CF Flange(Large)**

*Pneumatic series (with Bellows, Metal Bonnet Seal)*



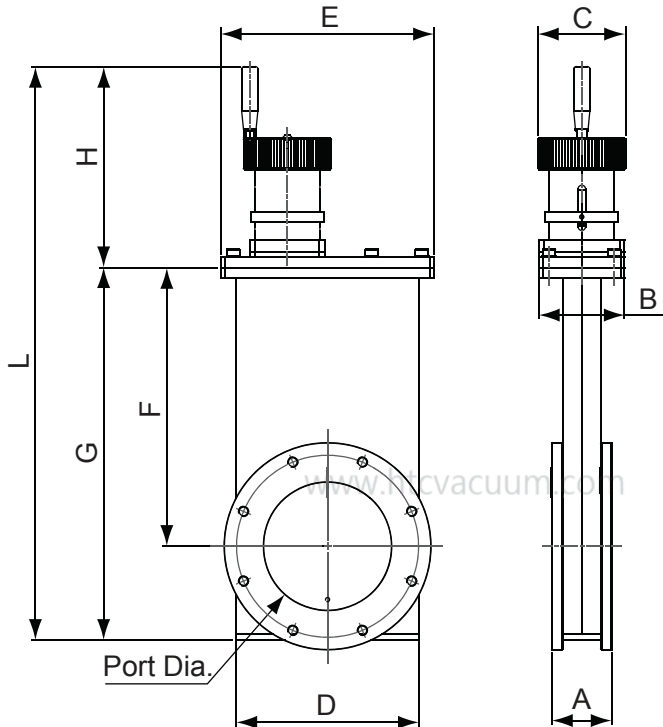
| Model No.      | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|----------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVB-SS-CF250-P | GB3K311   | 250       | Metal       | 304         | 284         | M8*32           | 360            | 16           |
| GVB-SS-CF275-P | GB3H311   | 250       | Metal       | 336.5       | 306.3       | M10*30          | 360            | 24           |
| GVB-SS-CF300-P | GB3J311   | 305       | Metal       | 355.6       | 325.5       | M10*30          | 360            | 24           |

| Model No.      | Parts No. | A     | B   | C   | D   | E   | F   | G   | H   | L    |
|----------------|-----------|-------|-----|-----|-----|-----|-----|-----|-----|------|
| GVB-SS-CF250-P | GB3K311   | 106.4 | 95  | 114 | 323 | 360 | 505 | 690 | 340 | 1030 |
| GVB-SS-CF275-P | GB3H311   | 106.4 | 95  | 114 | 323 | 360 | 505 | 690 | 340 | 1030 |
| GVB-SS-CF300-P | GB3J311   | 112.6 | 105 | 104 | 367 | 415 | 554 | 750 | 361 | 1111 |

➔ UHV Gate Valve (Ball groove mechanism)

CF Flange

Manual series (With Bellows, Metal Bonnet Seal)



| Model No.       | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|-----------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBB-SS-CF63-M  | GB3C411   | 63.7      | Metal       | 113.6       | 92.1        | M8*8            | 210            | 18           |
| GVBB-SS-CF100-M | GB3E411   | 102       | Metal       | 151.6       | 130.3       | M8*16           | 210            | 20           |
| GVBB-SS-CF150-M | GB3F411   | 200       | Metal       | 253.2       | 181         | M8*20           | 210            | 22           |
| GVBB-SS-CF200-M | GB3G411   | 200       | Metal       | 253.2       | 231.8       | M8*24           | 210            | 24           |
| GVBB-SA-CF275-M | GB3H411   | 255       | Metal       | 336.3       | 306.3       | M10*30          | 360            | 24           |

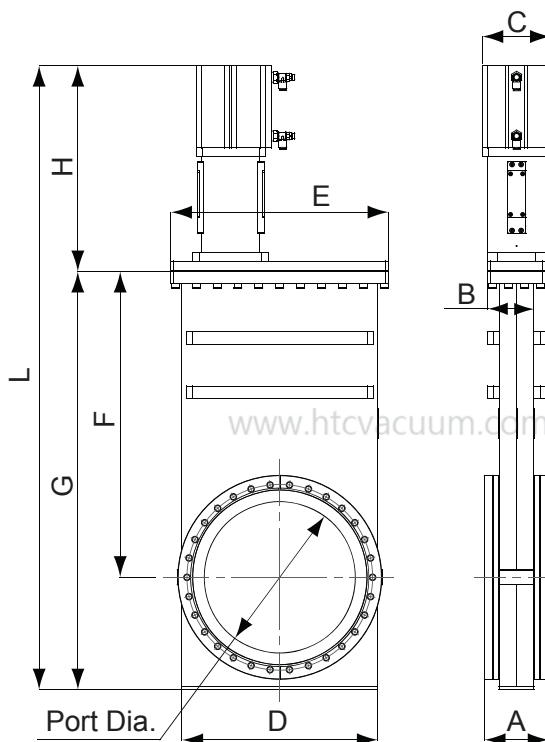
| Model No.       | Parts No. | A    | B  | C  | D   | E   | F     | G   | H     | L     |
|-----------------|-----------|------|----|----|-----|-----|-------|-----|-------|-------|
| GVBB-SS-CF63-M  | GB3C411   | 65   | 68 | 70 | 107 | 143 | 158   | 207 | 160   | 367   |
| GVBB-SS-CF100-M | GB3E411   | 69.6 | 68 | 70 | 146 | 182 | 222   | 297 | 160   | 457   |
| GVBB-SS-CF150-M | GB3F411   | 79   | 70 | 78 | 204 | 238 | 306.5 | 407 | 183   | 590   |
| GVBB-SS-CF200-M | GB3G411   | 84.4 | 70 | 78 | 245 | 282 | 382   | 506 | 183   | 689   |
| GVBB-SA-CF275-M | GB3H411   | 98   | 75 | 99 | 321 | 360 | 500   | 650 | 340.5 | 990.5 |



## ➤ UHV Gate Valve (Ball groove mechanism)

### CF Flange

*Pneumatic Series (With Bellows, Metal Bonnet Seal)*



| Model No.       | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|-----------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBB-SS-CF63-P  | GB3C511   | 63.7      | Metal       | 113.6       | 92.1        | M8*8            | 210            | 18           |
| GVBB-SS-CF100-P | GB3E511   | 102       | Metal       | 151.6       | 130.3       | M8*16           | 210            | 20           |
| GVBB-SS-CF150-P | GB3F511   | 153       | Metal       | 202.5       | 181         | M8*20           | 210            | 22           |
| GVBB-SS-CF200-P | GB3G511   | 200       | Metal       | 253.2       | 231.8       | M8*24           | 210            | 24           |
| GVBB-SA-CF275-P | GB3H511   | 255       | Metal       | 336.5       | 306.3       | M10*30          | 360            | 24           |

| Model No.       | Parts No. | A    | B  | C   | D   | E   | F     | G   | H     | L     |
|-----------------|-----------|------|----|-----|-----|-----|-------|-----|-------|-------|
| GVBB-SS-CF63-P  | GB3C511   | 65   | 68 | 62  | 107 | 143 | 158   | 207 | 155   | 362   |
| GVBB-SS-CF100-P | GB3E511   | 69.6 | 68 | 94  | 146 | 182 | 222   | 297 | 170   | 467   |
| GVBB-SS-CF150-P | GB3F511   | 79   | 70 | 94  | 204 | 238 | 306.5 | 407 | 198   | 605   |
| GVBB-SS-CF200-P | GB3G511   | 84.4 | 70 | 94  | 245 | 282 | 382   | 506 | 198   | 704   |
| GVBB-SA-CF275-P | GB3H511   | 98   | 75 | 114 | 321 | 360 | 500   | 650 | 282.5 | 932.5 |



## 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.

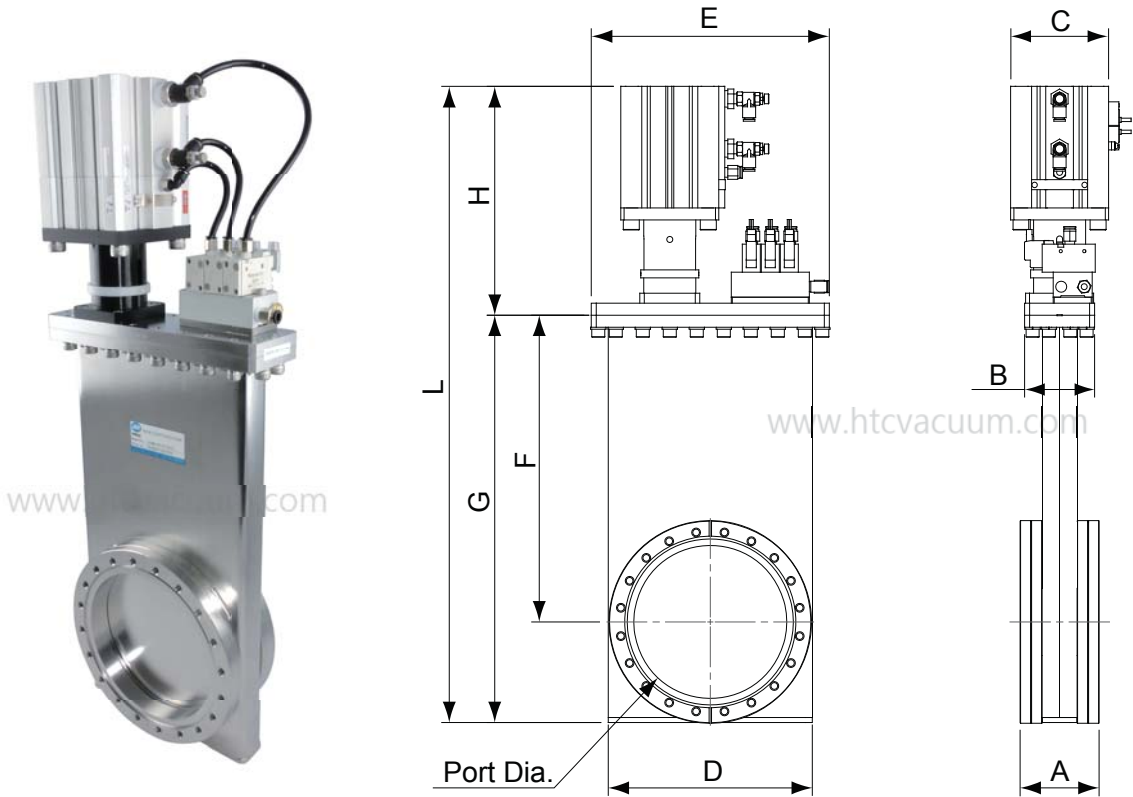
|                                                            |                                                                                                                        |                         |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Material                                                   | Body                                                                                                                   | 304 S.S.                |
|                                                            | Carriage                                                                                                               | 304 S.S.                |
|                                                            | Gate                                                                                                                   | 304 S.S.                |
|                                                            | Bellows                                                                                                                | AM350                   |
| 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)                                      | $1 \times 10^{-10} \sim 1000$                                                                                          |                         |
| Maximum $\Delta P$ (mbar)                                  | 27 before opening                                                                                                      |                         |
| Standard Seal                                              | Gate                                                                                                                   | Viton O-ring            |
|                                                            | Bonnet                                                                                                                 | OFHC copper gasket      |
| Actuator                                                   | Pneumatic                                                                                                              |                         |
| Compressed air supply<br>Tube connection<br>Pressure range | Ø6 mm<br>4~6 Kg/cm <sup>2</sup> (overpressure)                                                                         |                         |
| Surface Treatment                                          | Scotch Polished                                                                                                        |                         |
| Options                                                    | a. Position indicator<br>b. Pneumatic control solenoid valve<br>c. Roughing port<br>d. Other material Gate O-ring seal |                         |



## UHV 3 - Position Throttle Gate Valve

**CF Flange**

*Pneumatic Series*



| Model No.         | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|-------------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBB3P-SS-CF63-P  | GB3C611CB | 63.7      | Viton       | 113.6       | 92.1        | M8*8            | 210            | 18           |
| GVBB3P-SS-CF100-P | GB3E611CB | 102       | Viton       | 151.6       | 130.3       | M8*16           | 210            | 20           |
| GVBB3P-SS-CF150-P | GB3F611CB | 153       | Viton       | 202.5       | 181         | M8*20           | 210            | 22           |
| GVBB3P-SS-CF200-P | GB3G611CB | 200       | Viton       | 253.2       | 231.8       | M8*24           | 210            | 24           |

| Model No.         | Parts No. | A    | B  | C  | D   | E   | F     | G   | H   | L   |
|-------------------|-----------|------|----|----|-----|-----|-------|-----|-----|-----|
| GVBB3P-SS-CF63-P  | GB3C611CB | 65   | 68 | 64 | 107 | 143 | 158   | 207 | 192 | 399 |
| GVBB3P-SS-CF100-P | GB3E611CB | 69.6 | 68 | 98 | 146 | 182 | 222   | 297 | 215 | 512 |
| GVBB3P-SS-CF150-P | GB3F611CB | 79   | 70 | 98 | 204 | 238 | 306.5 | 407 | 229 | 636 |
| GVBB3P-SS-CF200-P | GB3G611CB | 84.4 | 70 | 98 | 245 | 282 | 382   | 506 | 239 | 745 |

**Standard voltage DC24V with Solenoid reed sensor**

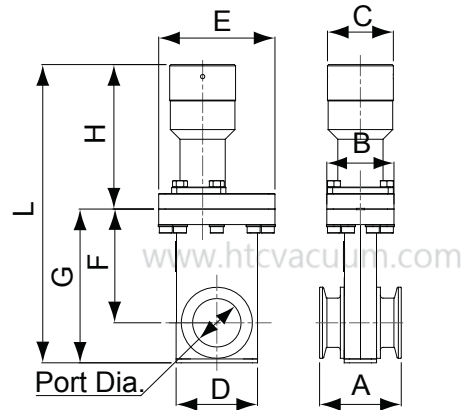




## HV Gate Valve (Linkage mechanism)

### KF Flange(Mini)

Manual series (with Bellows, Elastomer Bonnet Seal)



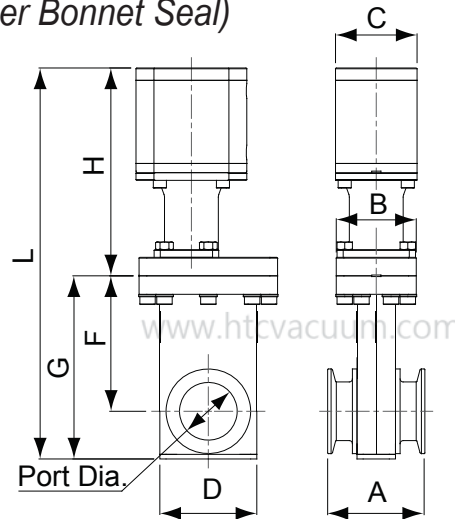
| Model No.     | Parts No. | Bonnet seal | Flange O.D. | Port Dia. |
|---------------|-----------|-------------|-------------|-----------|
| GVB-SS-KF40-M | GA1A112   | Viton       | 55          | 38        |
| GVB-SS-KF50-M | GA1B112   | Viton       | 75          | 50        |

| Model No.     | Parts No. | A  | B  | C  | D  | E   | F   | G   | H   | L   |
|---------------|-----------|----|----|----|----|-----|-----|-----|-----|-----|
| GVB-SS-KF40-M | GA1A112   | 50 | 52 | 51 | 63 | 90  | 88  | 119 | 113 | 232 |
| GVB-SS-KF50-M | GA1B112   | 59 | 56 | 51 | 81 | 104 | 123 | 167 | 129 | 296 |

### KF Flange(Mini)

Pneumatic series (with Bellows, Elastomer Bonnet Seal)



| Model No.     | Parts No. | Port Dia. | Bonnet seal | Flange O.D. |
|---------------|-----------|-----------|-------------|-------------|
| GVB-SS-KF40-P | GA1A312   | 38        | Viton       | 55          |
| GVB-SS-KF50-P | GA1B312   | 50        | Viton       | 75          |

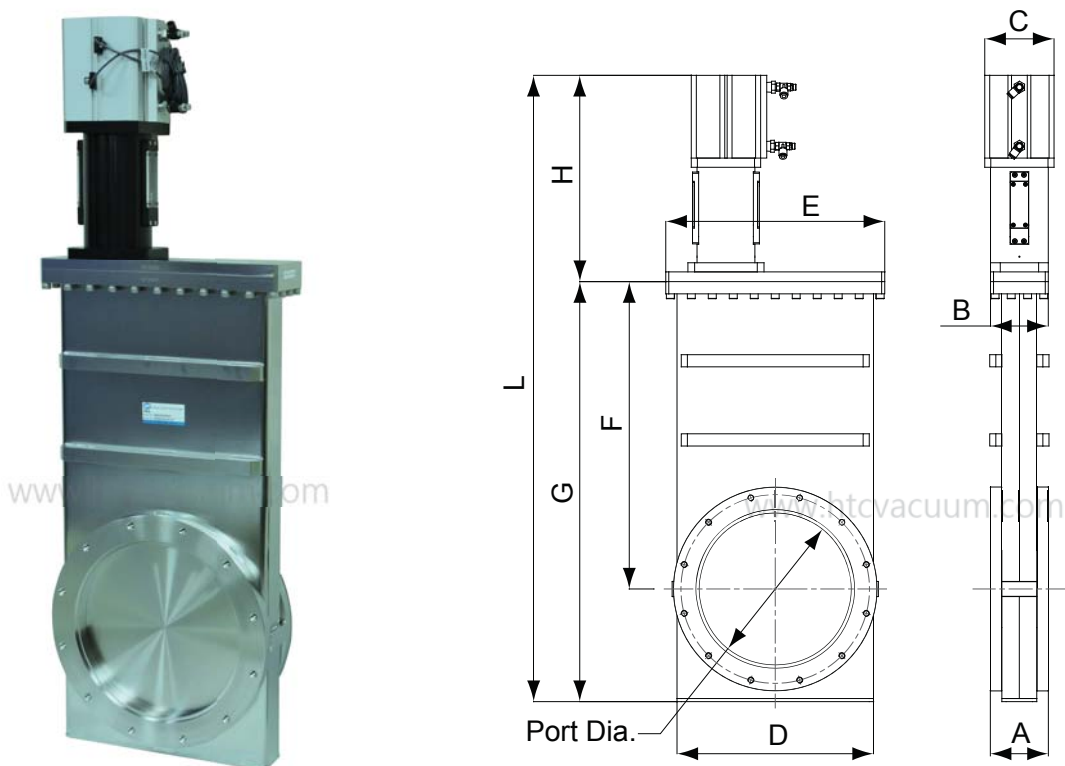
  

| Model No.     | Parts No. | A  | B  | C  | D  | E   | F   | G   | H   | L   |
|---------------|-----------|----|----|----|----|-----|-----|-----|-----|-----|
| GVB-SS-KF40-P | GA1A312   | 50 | 52 | 53 | 63 | 90  | 88  | 119 | 135 | 254 |
| GVB-SS-KF50-P | GA1B312   | 59 | 56 | 53 | 81 | 104 | 123 | 167 | 154 | 321 |

➡ HV Gate Valve (Linkage mechanism)

ISO Flange(Large)

Pneumatic series (with Bellows, Elastomer Bonnet Seal)



| Model No.       | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|-----------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVB-SS-ISO250-P | GA4H311   | 250       | Viton       | 335         | 310         | M10*12          | 150            | 19           |
| GVB-SS-ISO320-P | GA4J311   | 305       | Viton       | 425         | 395         | M12*12          | 150            | 20           |

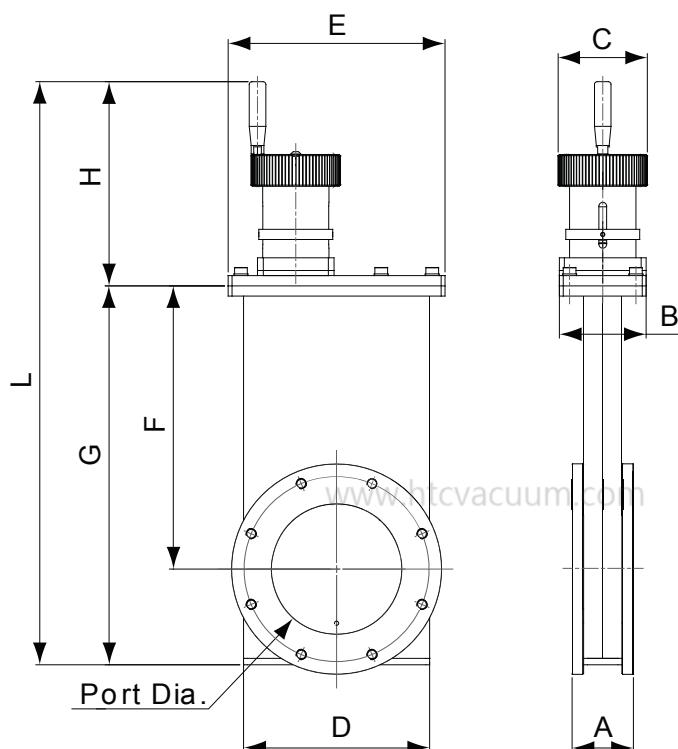
| Model No.       | Parts No. | A     | B   | C   | D   | E   | F   | G   | H   | L    |
|-----------------|-----------|-------|-----|-----|-----|-----|-----|-----|-----|------|
| GVB-SS-ISO250-P | GA4H311   | 95.4  | 95  | 114 | 323 | 360 | 505 | 690 | 340 | 1030 |
| GVB-SS-ISO320-P | GA4J311   | 103.6 | 105 | 140 | 367 | 415 | 554 | 750 | 361 | 1111 |



## HV Gate Valve (Ball groove mechanism)

**ISO Flange**

*Manual series*



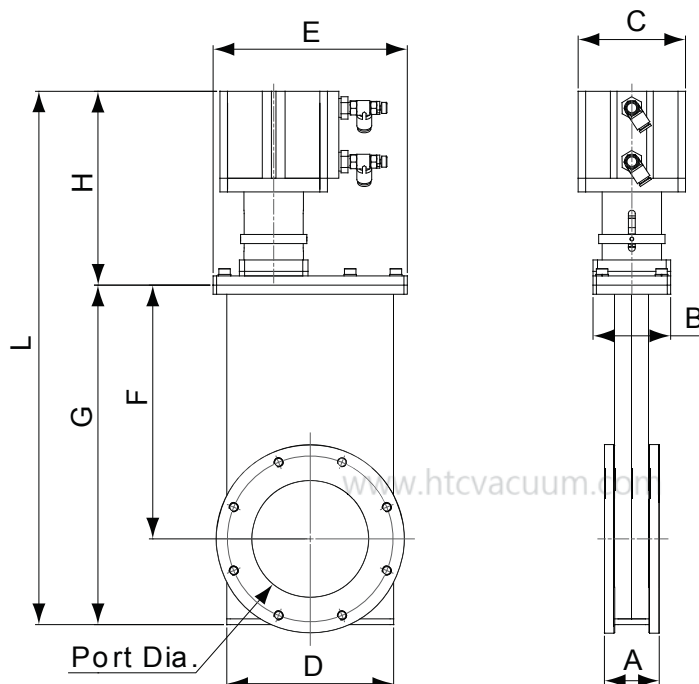
| Model No.        | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|------------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBB-SS-ISO63-M  | GA4C411   | 63.7      | Vition      | 130         | 110         | M8*4            | 100            | 12           |
| GVBB-SS-ISO100-M | GA4E411   | 102       | Viton       | 165         | 145         | M8*8            | 100            | 12           |
| GVBB-SS-ISO160-M | GA4F411   | 153       | Vition      | 225         | 200         | M10*8           | 100            | 16           |
| GVBB-SS-ISO200-M | GA4G411   | 200       | Viton       | 285         | 260         | M10*12          | 150            | 16           |
| GVBB-SA-ISO250-M | GA4H411   | 254       | Viton       | 335         | 310         | M10*12          | 150            | 19           |

| Model No.        | Parts No. | A    | B  | C  | D   | E   | F     | G   | H     | L     |
|------------------|-----------|------|----|----|-----|-----|-------|-----|-------|-------|
| GVBB-SS-ISO63-M  | GA4C411   | 53   | 68 | 70 | 107 | 128 | 158   | 207 | 160   | 367   |
| GVBB-SS-ISO100-M | GA4E411   | 53.6 | 68 | 70 | 146 | 170 | 222   | 297 | 160   | 457   |
| GVBB-SS-ISO160-M | GA4F411   | 67   | 68 | 78 | 204 | 220 | 306.5 | 407 | 183   | 590   |
| GVBB-SS-ISO200-M | GA4G411   | 67   | 70 | 78 | 245 | 267 | 383   | 507 | 183   | 690   |
| GVBB-SA-ISO250-M | GA4H411   | 80   | 75 | 99 | 321 | 340 | 500   | 650 | 340.5 | 990.5 |

## HV Gate Valve (Ball groove mechanism)

**ISO Flange**

*Pneumatic series*



| Model No.        | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|------------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBB-SS-ISO63-P  | GA4C511   | 63.7      | Viton       | 130         | 110         | M8*4            | 100            | 12           |
| GVBB-SS-ISO100-P | GA4E511   | 102       | Viton       | 165         | 145         | M8*8            | 100            | 12           |
| GVBB-SS-ISO160-P | GA4F511   | 153       | Viton       | 225         | 200         | M10*8           | 100            | 16           |
| GVBB-SS-ISO200-P | GA4G511   | 200       | Viton       | 285         | 260         | M10*12          | 150            | 16           |
| GVBB-SA-ISO250-P | GA4H511   | 254       | Viton       | 335         | 310         | M10*12          | 150            | 19           |

| Model No.        | Parts No. | A    | B  | C   | D   | E   | F     | G   | H     | L     |
|------------------|-----------|------|----|-----|-----|-----|-------|-----|-------|-------|
| GVBB-SS-ISO63-P  | GA4C511   | 53   | 68 | 62  | 107 | 128 | 158   | 207 | 155   | 362   |
| GVBB-SS-ISO100-P | GA4E511   | 53.6 | 68 | 94  | 146 | 170 | 222   | 297 | 170   | 467   |
| GVBB-SS-ISO160-P | GA4F511   | 67   | 68 | 94  | 204 | 220 | 306.5 | 407 | 198   | 605   |
| GVBB-SS-ISO200-P | GA4G511   | 67   | 70 | 94  | 245 | 267 | 383   | 507 | 198   | 705   |
| GVBB-SA-ISO250-P | GA4H511   | 80   | 75 | 114 | 321 | 340 | 500   | 650 | 282.5 | 932.5 |



## HV 3-Position Throttle Gate Valve (Ball groove mechanism)

### Features

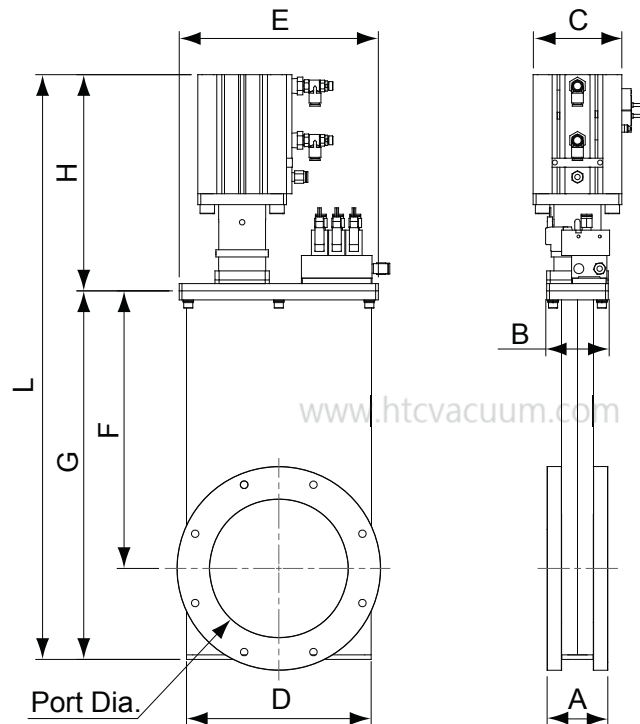
- Use lockable cylinder, gate plate could precisely stop at alternative position.
- Alternative position is set by reed sensor.
- Good reproducibility of gate plate position, tolerance  $\pm 1\%$ .
- Procedure control is programmable and flexible.

|                                                            |                                                                                                                        |                         |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Material                                                   | Body                                                                                                                   | 304 S.S.                |
|                                                            | Carriage                                                                                                               | 304 S.S.                |
|                                                            | Gate                                                                                                                   | 304 S.S.                |
|                                                            | Bellows                                                                                                                | AM350                   |
| 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)                                      | $1 \times 10^{-8} \sim 1000$                                                                                           |                         |
| Maximum $\Delta P$ (mbar)                                  | 27 before opening                                                                                                      |                         |
| Standard Seal                                              | Gate                                                                                                                   | Viton O-ring            |
|                                                            | Bonnet                                                                                                                 | Viton O-ring            |
| Actuator                                                   | Pneumatic                                                                                                              |                         |
| Compressed air supply<br>Tube connection<br>Pressure range | Ø6 mm<br>4~6 Kg/cm <sup>2</sup> (overpressure)                                                                         |                         |
| Surface Treatment                                          | Scotch Polished                                                                                                        |                         |
| Options                                                    | a. Position indicator<br>b. Pneumatic control solenoid valve<br>c. Roughing port<br>d. Other material Gate O-ring seal |                         |

➔ HV 3-Position Throttle Gate Valve

ISO Flange

Pneumatic series



| Model No.          | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|--------------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBB3P-SS-ISO63-P  | GA4C611CB | 63.7      | Viton       | 130         | 110         | M8*4            | 100            | 12           |
| GVBB3P-SS-ISO100-P | GA4E611CB | 102       | Viton       | 165         | 145         | M8*8            | 100            | 12           |
| GVBB3P-SS-ISO160-P | GA4F611CB | 153       | Viton       | 225         | 200         | M10*8           | 100            | 16           |
| GVBB3P-SS-ISO200-P | GA4G611CB | 200       | Viton       | 285         | 260         | M10*12          | 150            | 16           |

| Model No.           | Parts No. | A    | B  | C  | D   | E   | F     | G   | H   | L   |
|---------------------|-----------|------|----|----|-----|-----|-------|-----|-----|-----|
| GVBBV3P-SS-ISO63-P  | GA4C611CB | 53   | 68 | 64 | 107 | 128 | 158   | 207 | 192 | 399 |
| GVBBV3P-SS-ISO100-P | GA4E611CB | 53.6 | 68 | 98 | 146 | 170 | 222   | 297 | 215 | 512 |
| GVBBV3P-SS-ISO160-P | GA4F611CB | 67   | 68 | 98 | 204 | 220 | 306.5 | 407 | 229 | 636 |
| GVBBV3P-SS-ISO200-P | GA4G611CB | 67   | 70 | 98 | 245 | 267 | 383   | 507 | 239 | 746 |

Standard voltage DC24V with Solenoid & reed sensor.



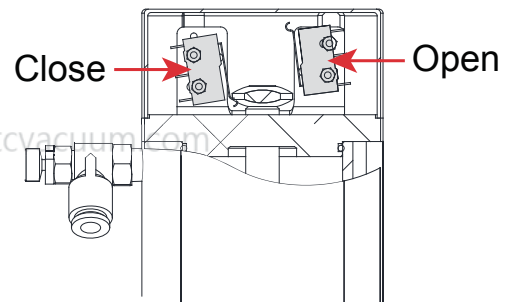
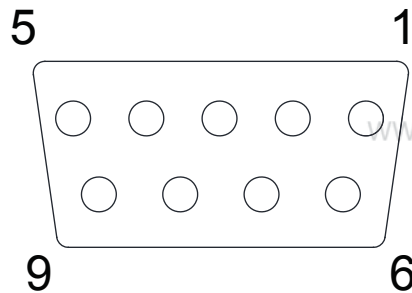


## UHV Gate Valve - Limit Switch

|                                                      |                                                                                               |                    |         |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------|---------|
| Material                                             | Body                                                                                          | 304 S.S.           |         |
|                                                      | Carriage                                                                                      | 304 S.S.           |         |
|                                                      | Gate                                                                                          | 304 S.S.           |         |
|                                                      | Bellows                                                                                       | AM350              |         |
| Cycle life                                           | size under 4” (included)                                                                      | 100,000            |         |
|                                                      | size above 4”                                                                                 | 50,000             |         |
| Helium leak rates at 1 atm differential              | < 5×10 <sup>-10</sup> mbar. l /sec for gasket seal                                            |                    |         |
| Bake Temperature                                     | Valve body (metal bonnet seal)                                                                | Open               | 200°C   |
|                                                      |                                                                                               | Closed             | 150°C   |
|                                                      | Actuator                                                                                      | Pneumatic          | ≤ 80 °C |
| Pressure Range (mbar)                                | 1x10 <sup>-10</sup> ~1000                                                                     |                    |         |
| Maximum Δ P (mbar)                                   | 27 before opening                                                                             |                    |         |
| Standard Seal                                        | Gate                                                                                          | Viton O-ring       |         |
|                                                      | Bonnet                                                                                        | OFHC copper gasket |         |
| Compressed air supply tube connection pressure range | Ø6 mm<br>4~6Kg/cm <sup>2</sup> (overpressure)                                                 |                    |         |
| Actuator                                             | Pneumatic                                                                                     |                    |         |
| Connector                                            | D-sub Female 9 pins<br>Current Rating                                                         | 3A 110VAC          |         |
|                                                      |                                                                                               | 5A 24VDC           |         |
| Surface Treatment                                    | Scotch Polished                                                                               |                    |         |
| Options                                              | a. Pneumatic control solenoid valve<br>b. Roughing port<br>c. Other material Gate O-ring seal |                    |         |

### Wiring

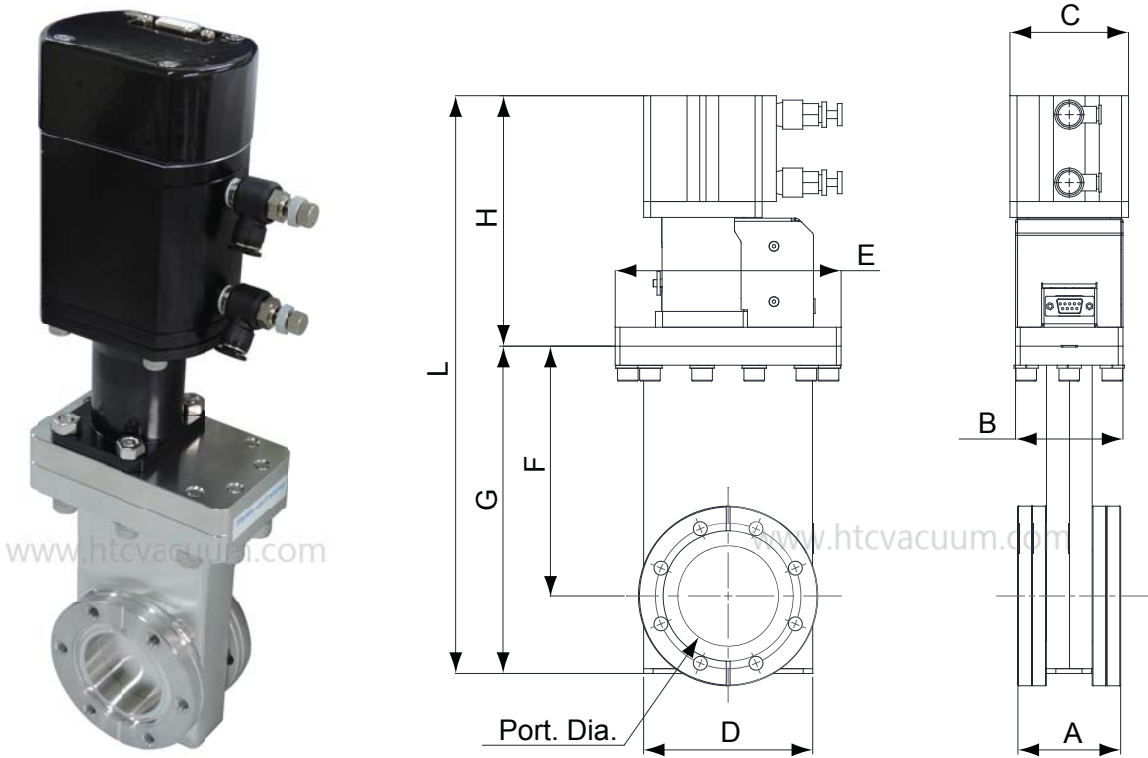
- Pin definition
  - 1:COM(Close)
  - 2:N.O(Close)
  - 3:N.C(Close)
  - 4:Empty
  - 5:Empty
  - 6:COM(Open)
  - 7:N.O(Open)
  - 8:N.C(Open)
  - 9:Empty



➤ UHV Gate Valve (Linkage mechanism)-Limit Switch

CF Flange(Mini)

Pneumatic series (with Bellows, Metal Bonnet Seal)



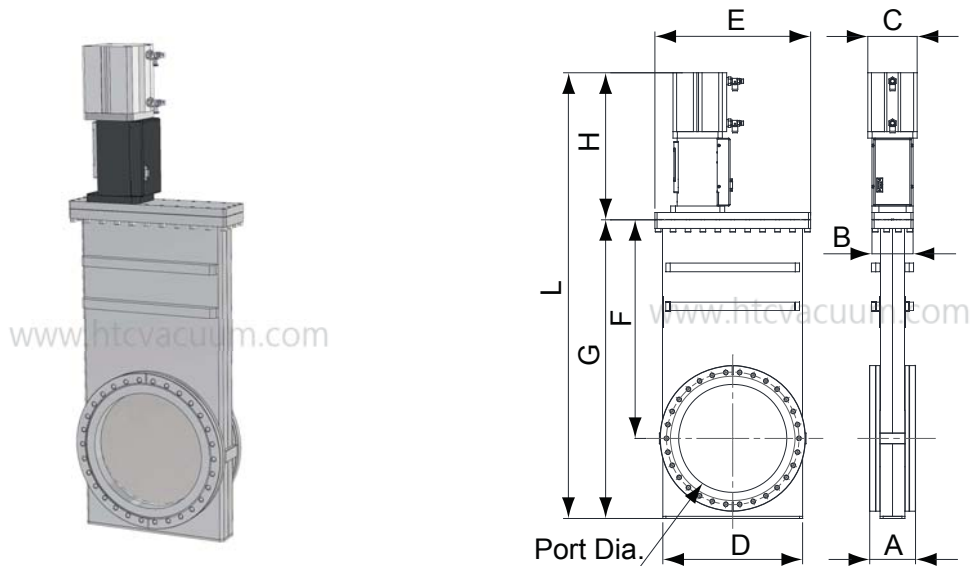
| Model No.       | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|-----------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBLS-SS-CF35-P | GB3A311NB | 37.5      | Metal       | 69.5        | 58.7        | M6*6            | 170            | 10           |
| GVBLS-SS-CF50-P | GB3B311NB | 50        | Metal       | 86          | 72.4        | M8*8            | 210            | 13           |

| Model No.       | Parts No. | A    | B  | C  | D  | E   | F   | G   | H     | L     |
|-----------------|-----------|------|----|----|----|-----|-----|-----|-------|-------|
| GVBLS-SS-CF35-P | GB3A311NB | 45.4 | 52 | 53 | 63 | 90  | 88  | 119 | 166.5 | 285.5 |
| GVBLS-SS-CF50-P | GB3B311NB | 56   | 56 | 53 | 81 | 104 | 123 | 167 | 185.5 | 352.5 |

## ➤ UHV Gate Valve (Linkage mechanism) - Limit Switch

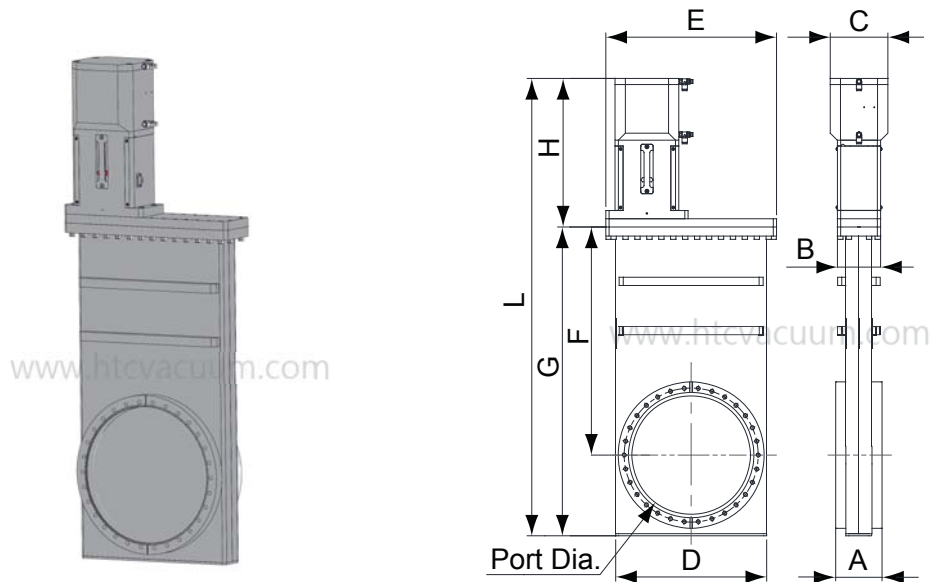
### CF Flange(Large)

Pneumatic series (with Bellows, Metal Bonnet Seal)



| Model No.        | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|------------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBLS-SS-CF275-P | GB3H311NB | 250       | Metal       | 336.5       | 306.5       | M10*30          | 360            | 24           |

| Model No.        | Parts No. | A     | B  | C   | D   | E   | F   | G   | H   | L    |
|------------------|-----------|-------|----|-----|-----|-----|-----|-----|-----|------|
| GVBLS-SS-CF275-P | GB3H311NB | 106.4 | 95 | 114 | 323 | 360 | 505 | 690 | 340 | 1030 |



| Model No.        | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|------------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBLS-SS-CF300-P | GB3J311NB | 305       | Metal       | 355.6       | 325.7       | M10*30          | 360            | 24           |

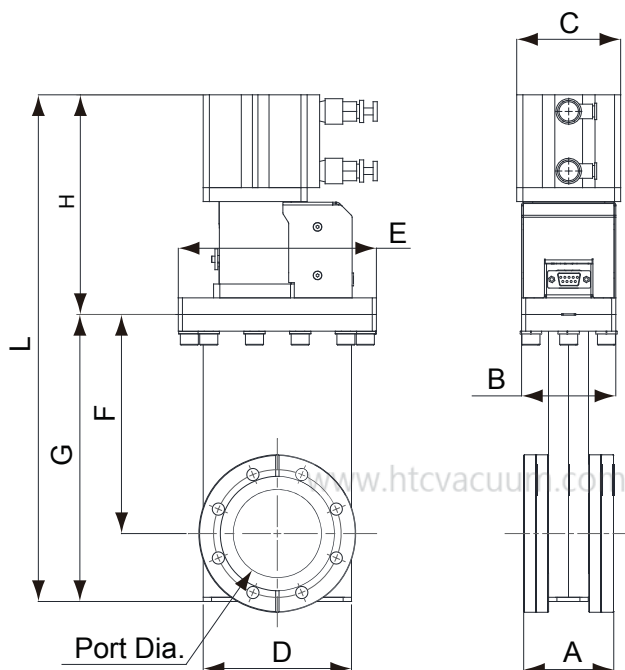
| Model No.        | Parts No. | A     | B   | C   | D   | E   | F   | G   | H   | L    |
|------------------|-----------|-------|-----|-----|-----|-----|-----|-----|-----|------|
| GVBLS-SS-CF300-P | GB3J311NB | 112.6 | 105 | 140 | 367 | 415 | 554 | 750 | 361 | 1111 |



## ➤ UHV Gate Valve (Ball groove mechanism) - Limit Switch

### CF Flange

Pneumatic series



| Model No.          | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|--------------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBBLSS-SS-CF63-P  | GB3C511NB | 63.7      | Metal       | 113.6       | 92.1        | M8*8            | 210            | 18           |
| GVBBLSS-SS-CF100-P | GB3E511NB | 102       | Metal       | 151.6       | 130.3       | M8*16           | 210            | 20           |
| GVBBLSS-SS-CF150-P | GB3F511NB | 153       | Metal       | 202.5       | 181         | M8*20           | 210            | 22           |
| GVBBLSS-SS-CF200-P | GB3G511NB | 200       | Metal       | 253.2       | 231.8       | M8*24           | 210            | 24           |

| Model No.          | Parts No. | A    | B  | C  | D   | E   | F     | G   | H   | L   |
|--------------------|-----------|------|----|----|-----|-----|-------|-----|-----|-----|
| GVBBLSS-SS-CF63-P  | GB3C511NB | 65   | 68 | 62 | 107 | 143 | 158   | 207 | 155 | 362 |
| GVBBLSS-SS-CF100-P | GB3E511NB | 69.6 | 68 | 94 | 146 | 182 | 222   | 297 | 170 | 467 |
| GVBBLSS-SS-CF150-P | GB3F511NB | 79   | 70 | 94 | 204 | 238 | 306.5 | 407 | 198 | 605 |
| GVBBLSS-SS-CF200-P | GB3G511NB | 84.4 | 70 | 94 | 245 | 282 | 382   | 506 | 198 | 704 |



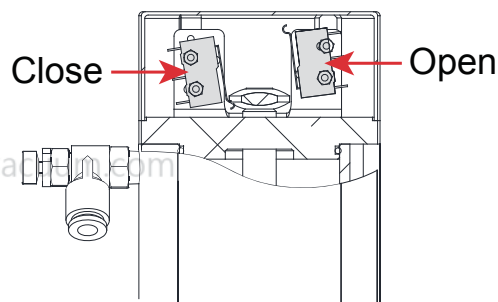
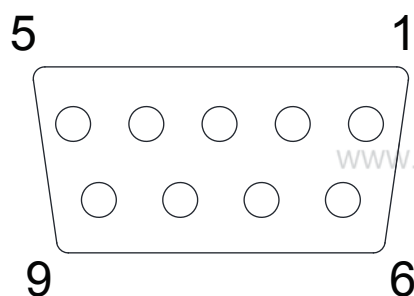
## ➤ HV Gate Valve - Limit switch

(lubricated mechanism)

|                                                      |                                       |              |                                                                                               |
|------------------------------------------------------|---------------------------------------|--------------|-----------------------------------------------------------------------------------------------|
| Material                                             | Body                                  |              | 304 S.S.                                                                                      |
|                                                      | Carriage                              |              | 304 S.S.                                                                                      |
|                                                      | Gate                                  |              | 304 S.S.                                                                                      |
|                                                      | Bellows                               |              | AM350                                                                                         |
| Cycle life                                           | size under 8" (included)              |              | 300,000                                                                                       |
|                                                      | size above 8"                         |              | 50,000                                                                                        |
| Helium leak rates at 1 atm differential              |                                       |              | < 2×10 <sup>-9</sup> mbar. l /sec for O-ring seal                                             |
| Bake Temperature                                     | Valve body                            | Open         | 150°C                                                                                         |
|                                                      |                                       | Closed       | 150°C                                                                                         |
|                                                      | Actuator                              | Pneumatic    | ≤ 80 °C                                                                                       |
| Pressure Range (mbar)                                |                                       |              | 1x10 <sup>-8</sup> ~1000                                                                      |
| Maximum Δ P (mbar)                                   |                                       |              | 27 before opening                                                                             |
| Standard Seal                                        | Gate                                  | Viton O-ring |                                                                                               |
|                                                      | Bonnet                                | Viton O-ring |                                                                                               |
| Compressed air supply tube connection pressure range | Ø6 mm                                 |              |                                                                                               |
|                                                      | 4~6Kg/cm <sup>2</sup> (overpressure)  |              |                                                                                               |
| Actuator                                             |                                       |              | Pneumatic                                                                                     |
| Connector                                            | D-sub Female 9 pins<br>Current Rating | 3A 110VAC    |                                                                                               |
|                                                      |                                       | 5A 24VDC     |                                                                                               |
| Surface Treatment                                    |                                       |              | Scotch Polished                                                                               |
| Options                                              |                                       |              | a. Pneumatic control solenoid valve<br>b. Roughing port<br>c. Other material Gate O-ring seal |

### Wiring

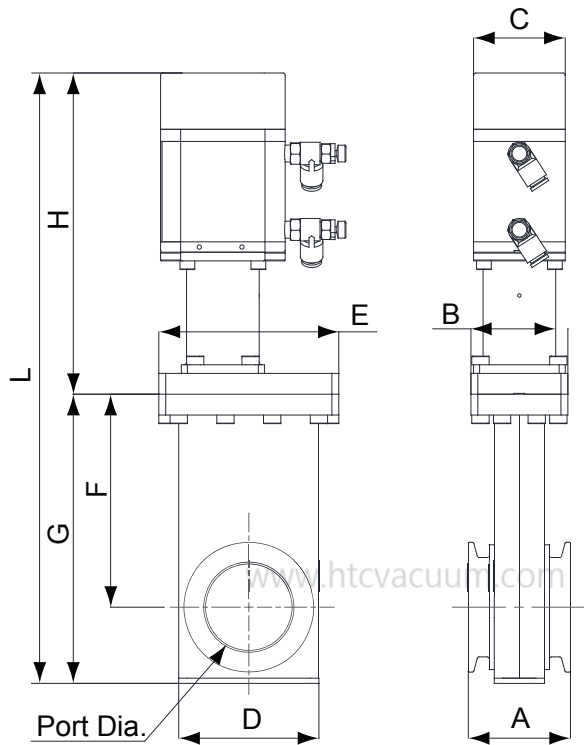
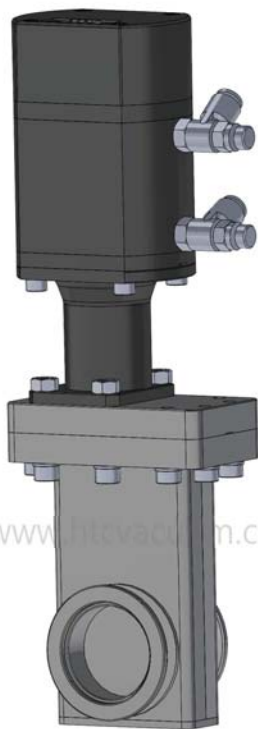
- Pin definition
  - 1:COM(Close)
  - 2:N.O(Close)
  - 3:N.C(Close)
  - 4:Empty
  - 5:Empty
  - 6:COM(Open)
  - 7:N.O(Open)
  - 8:N.C(Open)
  - 9:Empty



➔ HV Gate Valve(Linkage mechanism)-Limit Switch

**KF Flange (Mini)**

*Pneumatic Series (with Bellows, Elastomer Bonnet Seal)*



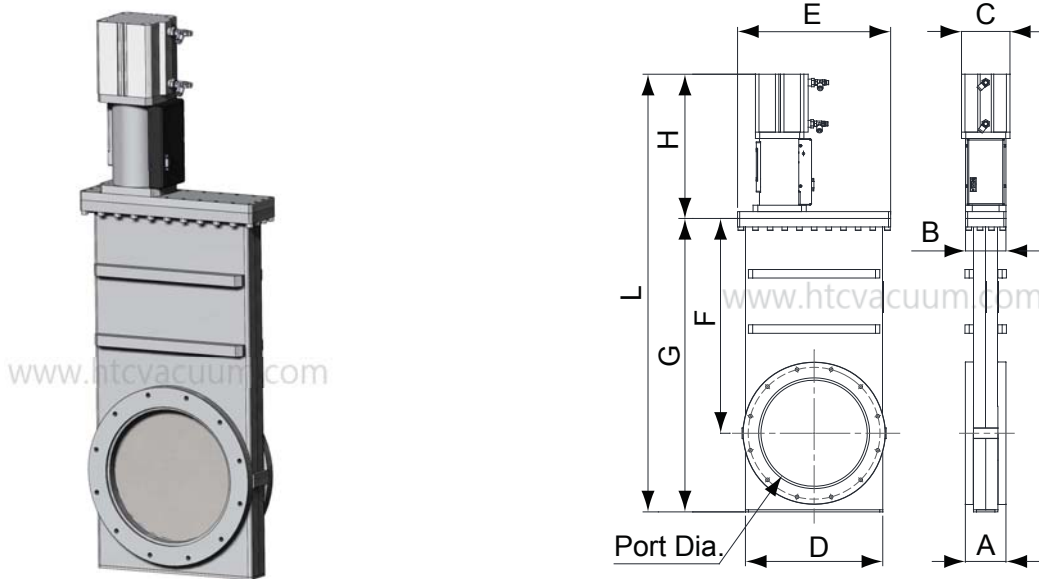
| Model No.       | Parts No. | Port Dia. | Bonnet seal | Flange O.D. |
|-----------------|-----------|-----------|-------------|-------------|
| GVBLS-SS-KF40-P | GA1A312NB | 38        | Viton       | 55          |
| GVBLS-SS-KF50-P | GA1B312NB | 50        | Viton       | 75          |

| Model No.       | Parts No. | A  | B  | C  | D  | E   | F   | G   | H     | L     |
|-----------------|-----------|----|----|----|----|-----|-----|-----|-------|-------|
| GVBLS-SS-KF40-P | GA1A312NB | 50 | 52 | 53 | 63 | 90  | 88  | 119 | 166.5 | 285.5 |
| GVBLS-SS-KF50-P | GA1B312NB | 59 | 56 | 53 | 81 | 104 | 123 | 167 | 185.5 | 352.5 |

## HV Gate Valve (Linkage mechanism)-Limit Switch

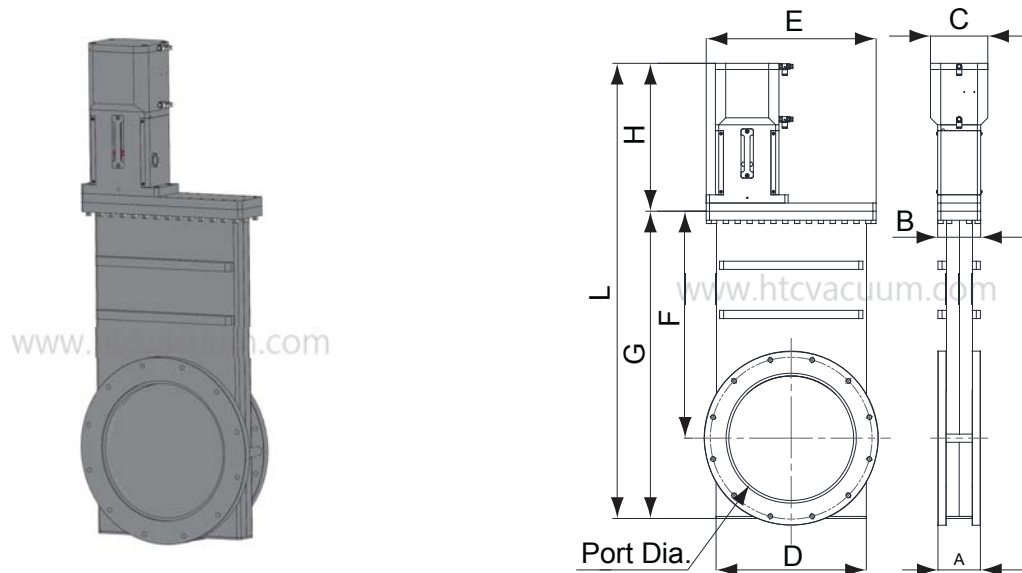
ISO Flange (Large)

Pneumatic Series (with Bellows, Elastomer Bonnet Seal)



| Model No.         | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|-------------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBLS-SS-ISO250-P | GA4H311NB | 250       | Viton       | 335         | 310         | M10*12          | 150            | 19           |

| Model No.         | Parts No. | A    | B  | C   | D   | E   | F   | G   | H   | L    |
|-------------------|-----------|------|----|-----|-----|-----|-----|-----|-----|------|
| GVBLS-SS-ISO250-P | GA4H311NB | 95.4 | 95 | 114 | 323 | 360 | 505 | 690 | 340 | 1030 |



| Model No.          | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|--------------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBLS-SS- ISO320-P | GA4J311NB | 305       | Viton       | 425         | 395         | M12*12          | 150            | 20           |

| Model No.         | Parts No. | A     | B   | C   | D   | E   | F   | G   | H   | L    |
|-------------------|-----------|-------|-----|-----|-----|-----|-----|-----|-----|------|
| GVBLS-SS-ISO320-P | GA4J311NB | 103.6 | 105 | 140 | 367 | 415 | 554 | 750 | 361 | 1111 |

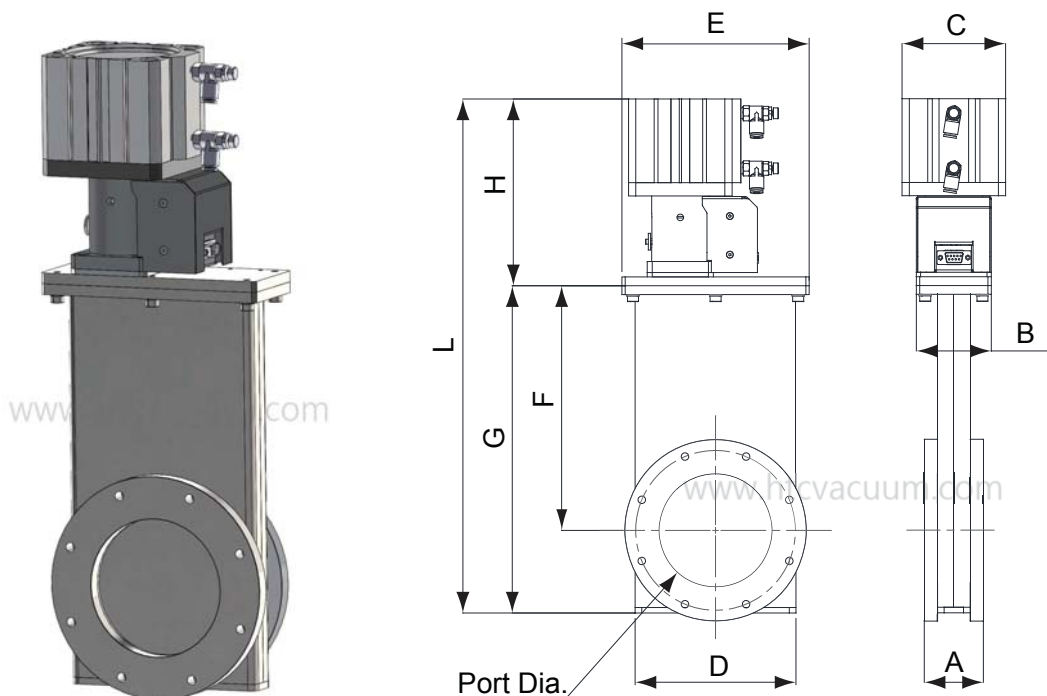




## HV Gate Valve (Ball groove mechanism) - Limit Switch

### ISO Flange

Pneumatic Series (with Bellows, Elastomer Bonnet Seal)



| Model No.           | Parts No. | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Torque (kg~cm) | Thread Depth |
|---------------------|-----------|-----------|-------------|-------------|-------------|-----------------|----------------|--------------|
| GVBBLSS-SS-ISO63-P  | GA4C511NB | 63.7      | Viton       | 130         | 110         | M8*4            | 100            | 12           |
| GVBBLSS-SS-ISO100-P | GA4E511NB | 102       | Viton       | 165         | 145         | M8*8            | 100            | 12           |
| GVBBLSS-SS-ISO160-P | GA4F511NB | 153       | Viton       | 225         | 200         | M10*8           | 100            | 16           |
| GVBBLSS-SS-ISO200-P | GA4G511NB | 200       | Viton       | 285         | 260         | M10*12          | 150            | 16           |

| Model No.           | A    | B  | C  | D   | E   | F     | G   | H   | L   | Parts No. |
|---------------------|------|----|----|-----|-----|-------|-----|-----|-----|-----------|
| GVBBLSS-SS-ISO63-P  | 53   | 68 | 62 | 107 | 128 | 158   | 207 | 155 | 362 | GA4C511NB |
| GVBBLSS-SS-ISO100-P | 53.6 | 68 | 94 | 146 | 170 | 222   | 297 | 170 | 467 | GA4E511NB |
| GVBBLSS-SS-ISO160-P | 67   | 68 | 94 | 204 | 220 | 306.5 | 407 | 198 | 605 | GA4F511NB |
| GVBBLSS-SS-ISO200-P | 67   | 70 | 94 | 245 | 267 | 383   | 507 | 198 | 705 | GA4G511NB |

## Gate Valve Kit

Figure 1



Spare Parts For 1.5"~12" HV Type

| Kit P/N  | Content                                    | Figure | For Port Size inches / (MM) |
|----------|--------------------------------------------|--------|-----------------------------|
| GA1A112K | Gate seal x1-Viton<br>Bonnet seal x1-Viton | 1      | 1.50" / (40)                |
| GA1B112K |                                            |        | 2.00" / (50)                |
| GA4C111K |                                            |        | 2.50" / (63)                |
| GA4E111K |                                            |        | 4.00" / (100)               |
| GA4F111K |                                            |        | 6.00" / (160)               |
| GA4G111K |                                            |        | 8.00" / (200)               |
| GA4H111K |                                            |        | 10.0" / (250)               |
| GA4J111K |                                            |        | 12.0" / (320)               |

Figure 2



Spare Parts For 1.5"~12" UHV Type

| Kit P/N  | Content                                              | Figure | For Port Size inches / (MM) |
|----------|------------------------------------------------------|--------|-----------------------------|
| GB3A111K | Gate seal x1-Viton<br>Bonnet seal x 1-OFHC<br>Copper | 2      | 1.50" / (35)                |
| GB3B111K |                                                      |        | 2.00" / (50)                |
| GB3C111K |                                                      |        | 2.50" / (63)                |
| GB3E111K |                                                      |        | 4.00" / (100)               |
| GB3F111K |                                                      |        | 6.00" / (150)               |
| GB3G111K |                                                      |        | 8.00" / (200)               |
| GB3H111K |                                                      |        | 10.0" / (250)               |
| GB3J111K |                                                      |        | 12.0" / (300)               |



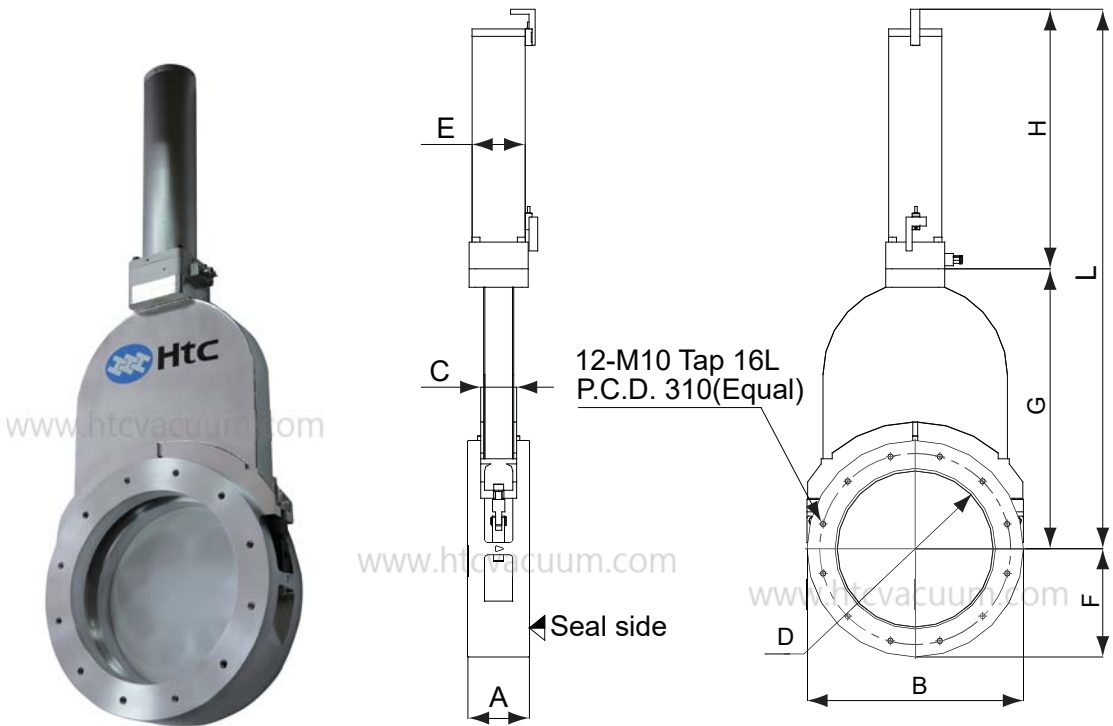
**HV Aluminum Gate Valve**

**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:  $\leq 1$  bar
- Differential pressure at opening:  $\leq 30$  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.       | Parts No. | Sensor | A   | B    | C    | D   | E  | F   | G   | H   | L   |
|-----------------|-----------|--------|-----|------|------|-----|----|-----|-----|-----|-----|
| GVS-AL-ISO250-P | G14H511NA | YES    | 100 | Ø352 | 58.5 | 261 | 86 | 176 | 455 | 422 | 877 |

| Accessory           | Description                      | Parts 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

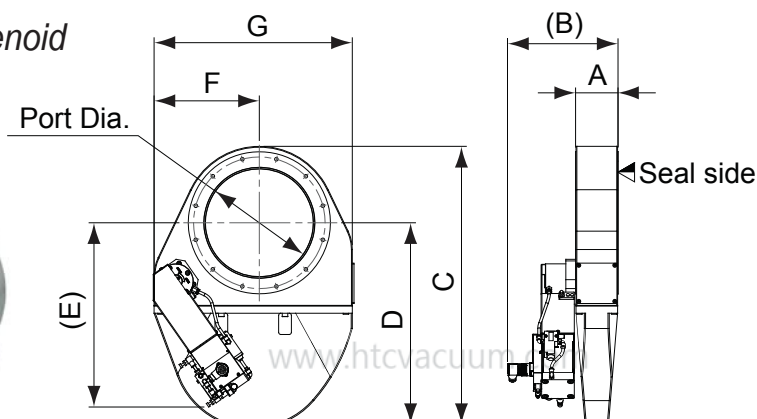
Design principle / features :

- Low Vibration
- Corrosion resistant
- Less dust
- Easy disassembly
- More Differential pressure

|                                         |                                                    |                                    |
|-----------------------------------------|----------------------------------------------------|------------------------------------|
| Material                                | Body                                               | A6061-T6                           |
|                                         | Gate                                               | A6061-T6                           |
| Cycle life                              | 200,000 cycles                                     |                                    |
| Helium leak rates at 1 atm differential | Body<br>Aluminum ,nickel plated                    | $<1 \times 10^{-9}$ mbar .l /sec   |
|                                         | Body<br>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                                      | $1 \times 10^{-8}$ mbar to 1.2 bar |
|                                         | Hard anodized                                      | $1 \times 10^{-6}$ mbar to 1.2 bar |
| Maximum $\Delta P$                      | 2 bar                                              |                                    |
| Maximum $\Delta P$ during opening       | $\leq 5$ mbar                                      |                                    |
| Compressed air pressure                 | 4 ~ 6 Kg/cm <sup>2</sup>                           |                                    |
| 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 seal<br>b. Heater |                                    |

## Pneumatically Actuated

Attached Reed Sensor & Solenoid  
Nickel plated



| Model No.        | Parts No.   | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Thread Depth |
|------------------|-------------|-----------|-------------|-------------|-------------|-----------------|--------------|
| PVSSV-A-ISO200-P | GP1131212CB | 200       | Viton       | 285         | 260         | M10*12          | 12           |
| PVSSV-A-ISO250-P | GP1141212CB | 254       | Viton       | 355         | 310         | M10*12          | 15           |

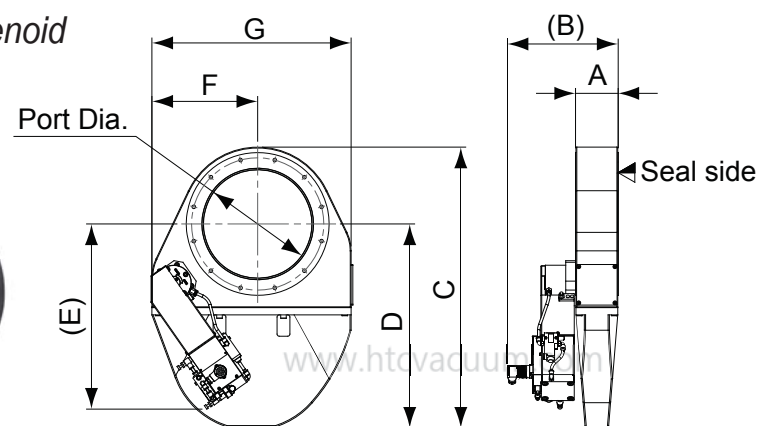
| Model No.        | Parts No.   | A   | B   | C   | D   | E   | F   | G   |
|------------------|-------------|-----|-----|-----|-----|-----|-----|-----|
| PVSSV-A-ISO200-P | GP1131212CB | 88  | 248 | 536 | 386 | 411 | 202 | 394 |
| PVSSV-A-ISO250-P | GP1141212CB | 100 | 260 | 655 | 475 | 434 | 248 | 467 |

Standard Surface Treatment : nickel plated

With reed sensors, with standard solenoid voltage DC24V

## Pneumatically Actuated

Attached Reed Sensor & Solenoid  
Hard anodized



| Model No.         | Parts No.   | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Thread Depth |
|-------------------|-------------|-----------|-------------|-------------|-------------|-----------------|--------------|
| PVSSV-HA-ISO200-P | GP1131213CB | 200       | Viton       | 285         | 260         | M10*12          | 12           |
| PVSSV-HA-ISO250-P | GP1141213CB | 254       | Viton       | 335         | 310         | M10*12          | 15           |

| Model No.         | Parts No.   | A   | B   | C   | D   | E   | F   | G   |
|-------------------|-------------|-----|-----|-----|-----|-----|-----|-----|
| PVSSV-HA-ISO200-P | GP1131213CB | 88  | 248 | 536 | 386 | 411 | 202 | 394 |
| PVSSV-HA-ISO250-P | GP1141213CB | 100 | 260 | 655 | 475 | 434 | 248 | 467 |

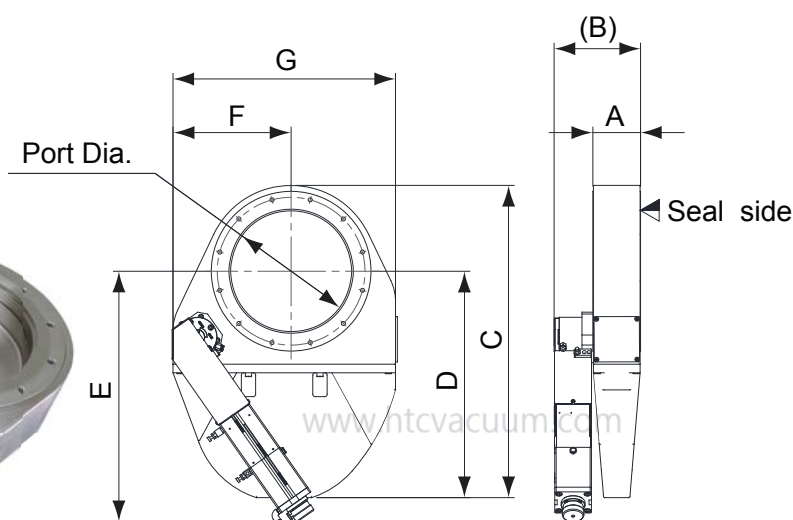
Surface Treatment : hard anodized

With reed sensors, with standard solenoid voltage DC24V

### ➤ 3-Position Pendulum valves

|                                         |                                                      |                                    |
|-----------------------------------------|------------------------------------------------------|------------------------------------|
| 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                                        | $1 \times 10^{-8}$ mbar to 1.2 bar |
|                                         | Hard anodized                                        | $1 \times 10^{-6}$ mbar to 1.2 bar |
| Maximum $\Delta P$                      | 2 bar                                                |                                    |
| Maximum $\Delta P$ during opening       | $\leq 5$ mbar                                        |                                    |
| Compressed air pressure                 | 4 ~ 6 Kg/cm <sup>2</sup>                             |                                    |
| 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 seal      b. Heater |                                    |

**Pneumatically Actuated**  
Attached Reed Sensor  
Nickel plated

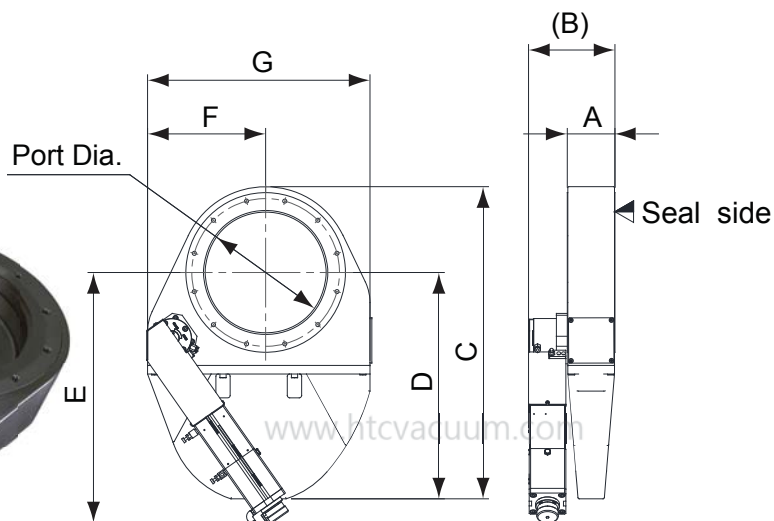


| Model No.       | Parts No.   | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Thread Depth |
|-----------------|-------------|-----------|-------------|-------------|-------------|-----------------|--------------|
| PV3P-A-ISO250-P | GP1143212NA | 254       | Viton       | 335         | 310         | M10*12          | 15           |

| Model No.       | Parts No.   | A   | B   | C   | D   | E   | F   | G   |
|-----------------|-------------|-----|-----|-----|-----|-----|-----|-----|
| PV3P-A-ISO250-P | GP1143212NA | 100 | 201 | 655 | 475 | 525 | 248 | 467 |

Standard Surface Treatment : nickel plated  
With reed sensors

**Pneumatically Actuated**  
Attached Reed Sensor  
Hard anodized



| Model No.        | Parts No.   | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Thread Depth |
|------------------|-------------|-----------|-------------|-------------|-------------|-----------------|--------------|
| PV3P-HA-ISO250-P | GP1143213NA | 254       | Viton       | 335         | 310         | M10*12          | 15           |

| Model No.        | Parts No.   | A   | B   | C   | D   | E   | F   | G   |
|------------------|-------------|-----|-----|-----|-----|-----|-----|-----|
| PV3P-HA-ISO250-P | GP1143213NA | 100 | 201 | 655 | 475 | 525 | 248 | 467 |

Surface Treatment : hard anodized  
With reed sensors



## APC Pendulum valves

### Main applications

Downstream pressure control and isolation valve.

### Application process

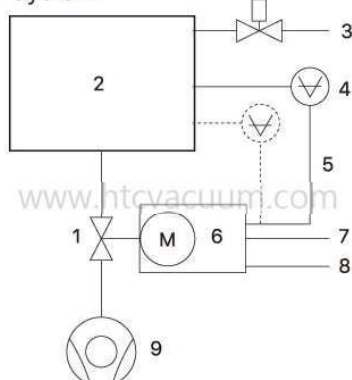
• SEMI • FPD • Solar • CVD

### Features

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

### APC pendulum valve gate system settings

System



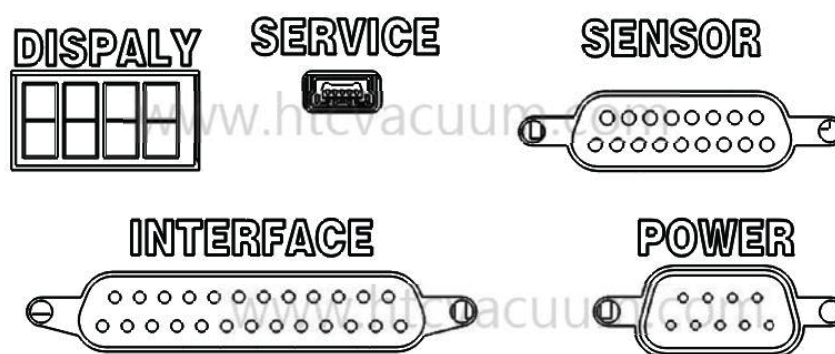
1. Valve
2. Process chamber
3. Gas inlet
4. Pressure sensor(s)
5. Sensor cable(s)
6. Controller and actuator
7. Cable to remote control unit
8. Cable to power supply
9. Pump

| Actuator unit with controller            |                                       |       |                                    |       |
|------------------------------------------|---------------------------------------|-------|------------------------------------|-------|
| Power consumption                        | + 24 V DC (±10%)                      |       |                                    |       |
|                                          | 100 W max. (controller + motor)       |       |                                    |       |
|                                          | 10 W max. for Power Failure Option    |       |                                    |       |
|                                          | 36 W max. for Sensor Power Supply     |       |                                    |       |
| Throttling Cycle                         | 200,000                               |       |                                    |       |
| Sensor supply                            | 24 V DC or ±15 V DC                   |       |                                    |       |
| Sensor Input                             | Signal voltage                        |       | 0 - 10 V DC linear with pressure   |       |
|                                          | Input resistance                      |       | Ri = 100kΩ                         |       |
|                                          | Resolution                            |       | 2.3 mV                             |       |
|                                          | Sampling rate                         |       | 1 ms                               |       |
| Control accuracy                         | 0.1% of maximum sensor range          |       |                                    |       |
| Position resolution                      | ≥ 8000                                |       |                                    |       |
| Ambient temperature                      | 50°C max                              |       |                                    |       |
| Material                                 | Body                                  |       | A6061-T6                           |       |
|                                          | Gate                                  |       | A6061-T6                           |       |
| Cycle Life                               | Closing / Opening                     |       | 200,000                            |       |
|                                          | Pressure Control                      |       | 1,000,000                          |       |
| Helium leak rates at 1 atm differential  | Body Aluminum, nickel plated          |       | <1×10 <sup>-9</sup> mbar. l /sec   |       |
|                                          | Body Aluminum ,hard anodized          |       | <1×10 <sup>-5</sup> mbar. l /sec   |       |
| Bake Temperature                         | Body                                  |       | ≤ 120°C                            |       |
| Pressure Range                           | Nickel plated                         |       | 1×10 <sup>-8</sup> mbar to 1.2 bar |       |
|                                          | Hard anodized                         |       | 1×10 <sup>-6</sup> mbar to 1.2 bar |       |
| Maximum Δ P                              | 2 bar                                 |       |                                    |       |
| Compressed air pressure                  | 4 ~ 6 Kg/cm <sup>2</sup>              |       |                                    |       |
| Opening / Closing time without isolation | ISO 200                               |       | 1.6 / 1.6 sec                      |       |
|                                          | ISO 250                               |       | 2 / 2 sec                          |       |
| Standard Seal                            | Gate                                  |       | Viton O-ring                       |       |
|                                          | Bonnet                                |       | Viton O-ring                       |       |
| Actuator                                 | Step Motor                            |       |                                    |       |
| Weight                                   | ISO 200                               | 25 Kg | ISO 250                            | 36 kg |
| Mounting position                        | Horizontal(Cylinder Up) & vertical    |       |                                    |       |
| Options                                  | a. Other material of Gate O-ring Seal |       | b. Heater                          |       |



|           | Connection                          | Type                   |
|-----------|-------------------------------------|------------------------|
| Power     | Power input                         | DB-9 male              |
| Sensor    | Sensor input<br>Sensor power supply | DB-15 female           |
| Interface | RS232/RS485                         | 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

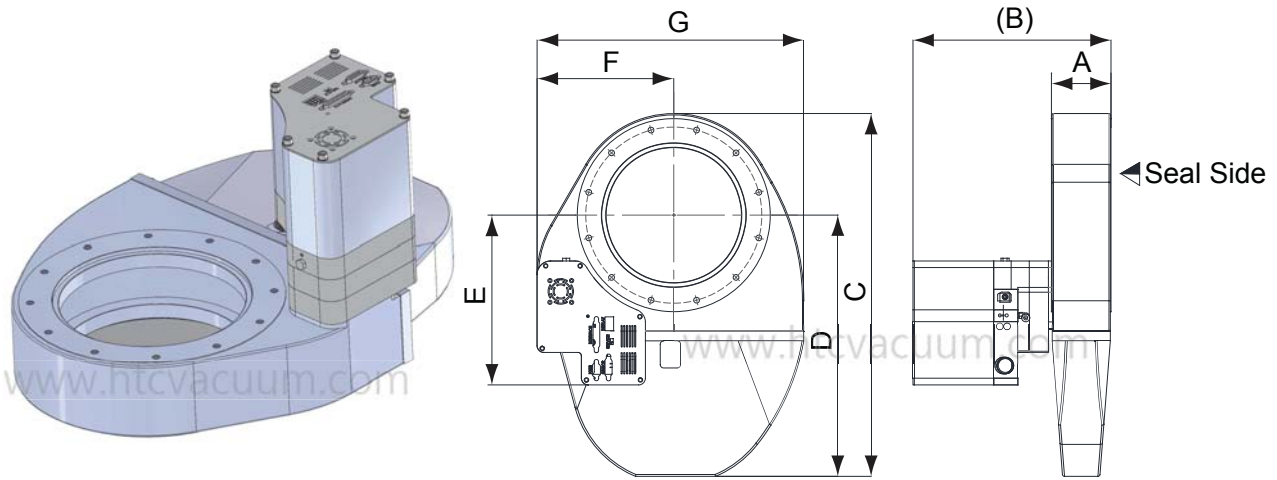
- Set control tuning parameter : GAIN
- Pressure and position control mode
- Schedule test Mode => 1 cycle schedule
- Set valve open/close speed
- Report APC HW/SW version, serial and model number
- Report valve cycles and run hours
- Set tolerance scope of pressure
- Cycles life and pressure control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



## APC Pendulum Valve

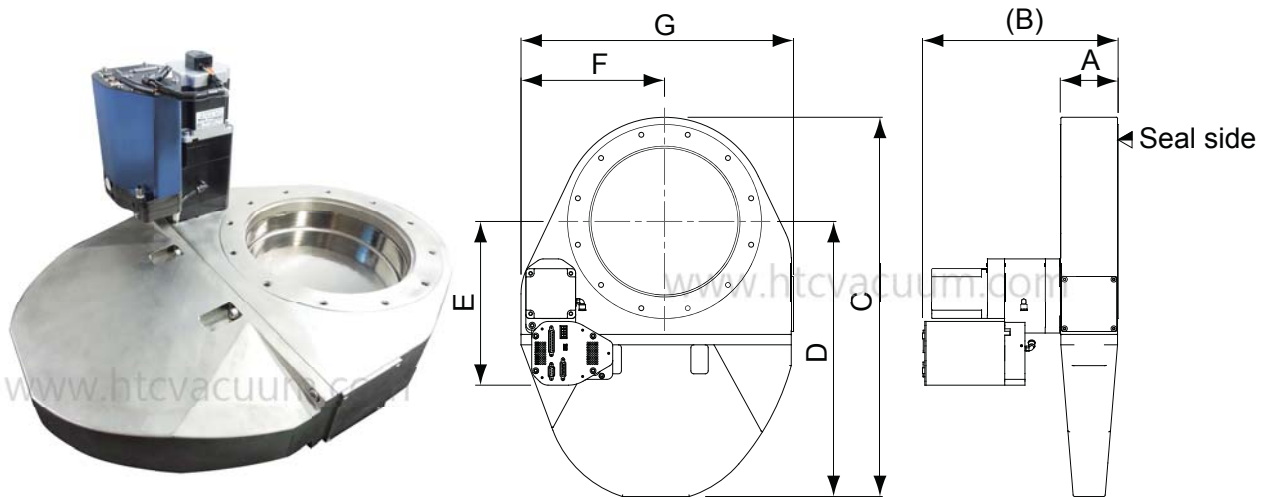
### Control System

Nickel plated



| Model No.        | Parts No.   | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Thread Depth |
|------------------|-------------|-----------|-------------|-------------|-------------|-----------------|--------------|
| PVSSV-A-ISO200-C | GP1132212PA | 200       | Viton       | 285         | 260         | M10*12          | 12           |

| Model No.        | Parts No.   | A  | B   | C   | D   | E   | F   | G   |
|------------------|-------------|----|-----|-----|-----|-----|-----|-----|
| PVSSV-A-ISO200-C | GP1132212PA | 88 | 293 | 536 | 386 | 251 | 202 | 394 |



| Model No.        | Parts No.   | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Thread Depth |
|------------------|-------------|-----------|-------------|-------------|-------------|-----------------|--------------|
| PVSSV-A-ISO250-C | GP1142212PA | 254       | Viton       | 335         | 310         | M10*12          | 15           |

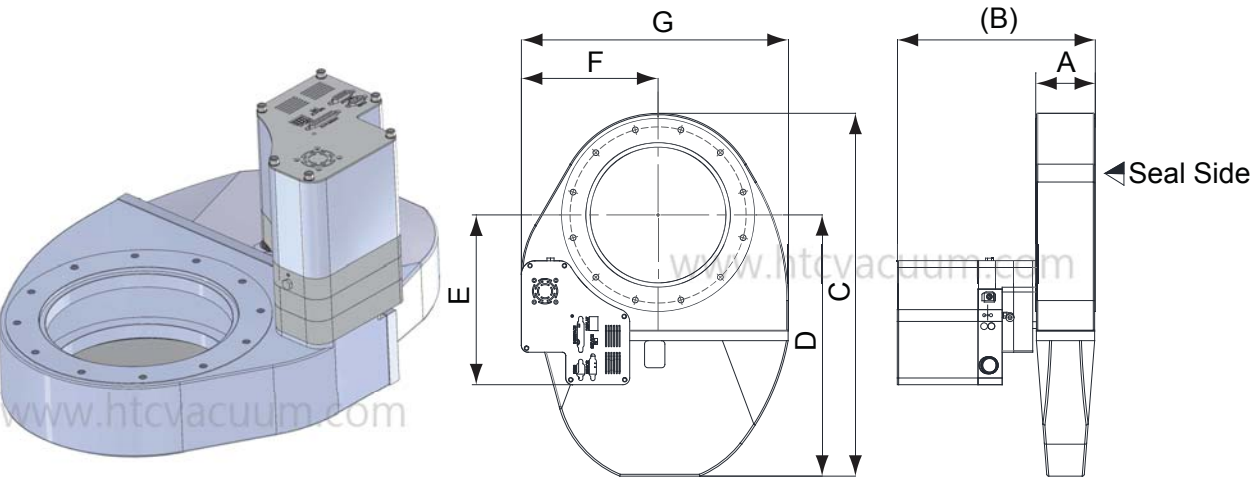
| Model No.        | Parts No.   | A   | B   | C   | D   | E   | F   | G   |
|------------------|-------------|-----|-----|-----|-----|-----|-----|-----|
| PVSSV-A-ISO250-C | GP1142212PA | 100 | 338 | 655 | 475 | 283 | 248 | 470 |

Standard Surface Treatment : nickel plated



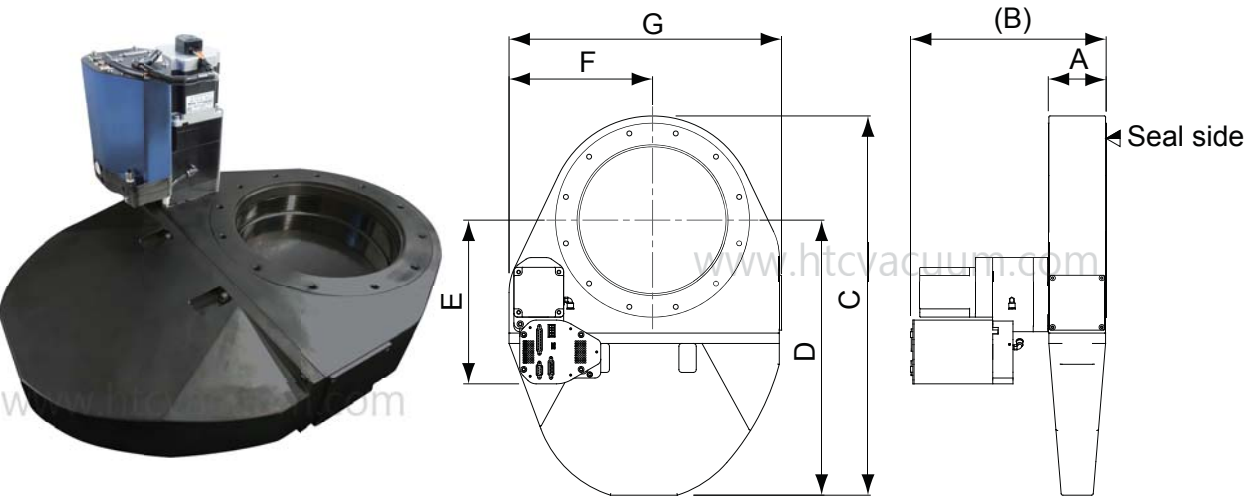
➔ APC PENDULUM VALVE

Control System  
Hard anodized



| Model No.         | Parts No.   | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Thread Depth |
|-------------------|-------------|-----------|-------------|-------------|-------------|-----------------|--------------|
| PVSSV-HA-ISO200-C | GP1132213PA | 200       | Viton       | 285         | 260         | M10*12          | 12           |

| Model No.         | Parts No.   | A  | B   | C   | D   | E   | F   | G   |
|-------------------|-------------|----|-----|-----|-----|-----|-----|-----|
| PVSSV-HA-ISO200-C | GP1132213PA | 88 | 293 | 536 | 386 | 251 | 202 | 394 |



| Model No.         | Parts No.   | Port Dia. | Bonnet seal | Flange O.D. | Bolt P.C.D. | Bolt Size * No. | Thread Depth |
|-------------------|-------------|-----------|-------------|-------------|-------------|-----------------|--------------|
| PVSSV-HA-ISO250-C | GP1142213PA | 254       | Viton       | 335         | 310         | M10*12          | 15           |

| Model No.         | Parts No.   | A   | B   | C   | D   | E   | F   | G   |
|-------------------|-------------|-----|-----|-----|-----|-----|-----|-----|
| PVSSV-HA-ISO250-C | GP1142213PA | 100 | 338 | 655 | 475 | 283 | 248 | 470 |

Standard Surface Treatment : Hard anodized

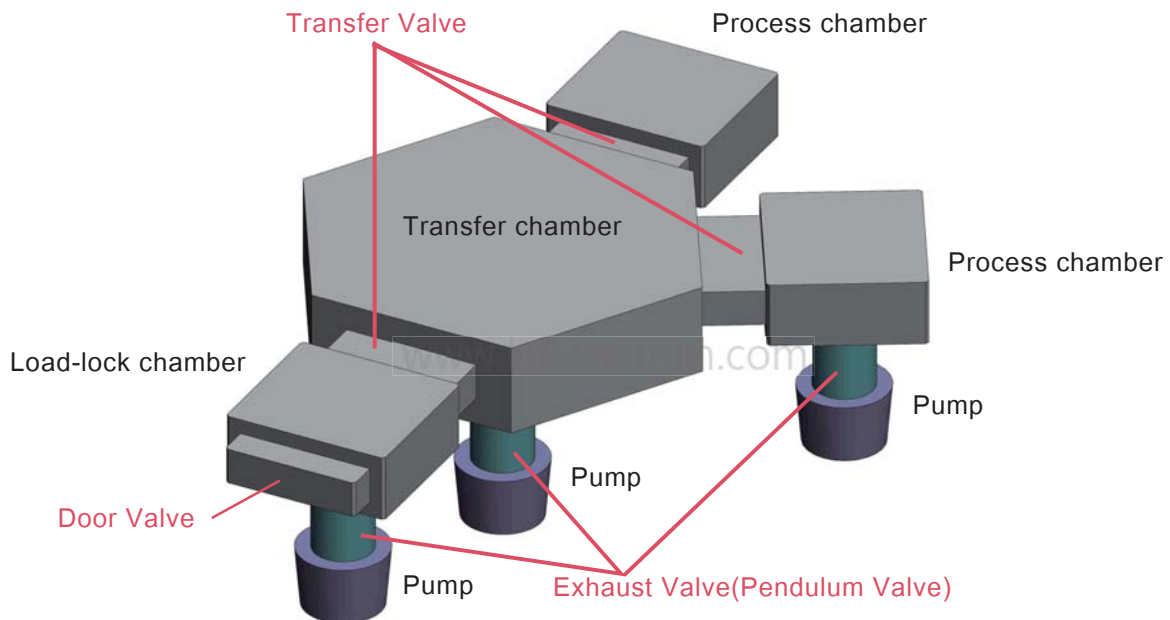


## ➡ Transfer valves and doors

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

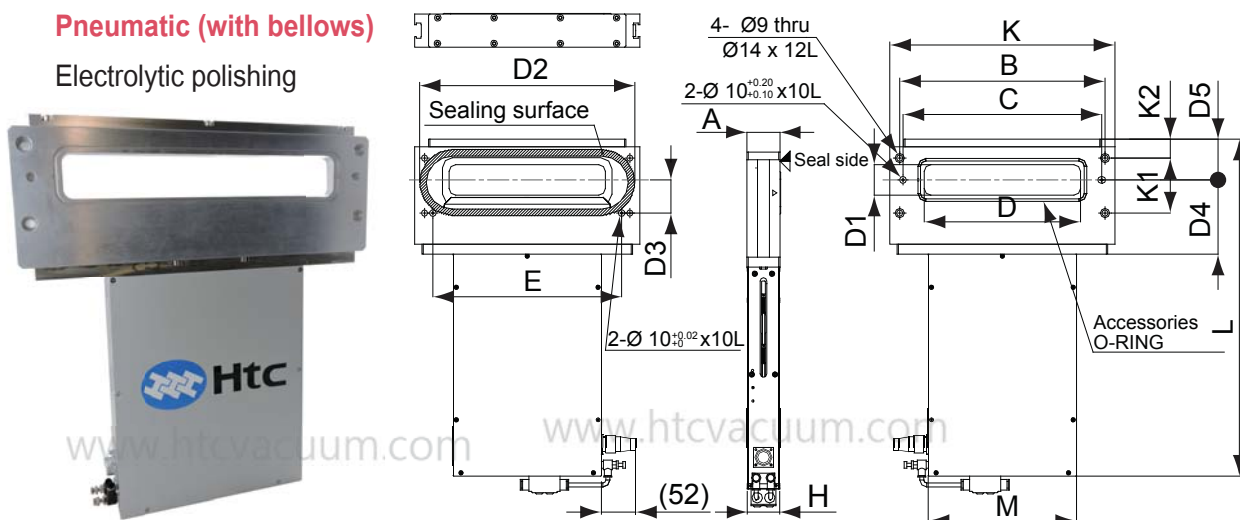
- Electrolytic polishing : Aluminum or Stainless Steel
- Hard anodized : Aluminum



## ➤ Rectangular transfer valve

Pneumatic (with bellows)

Electrolytic polishing



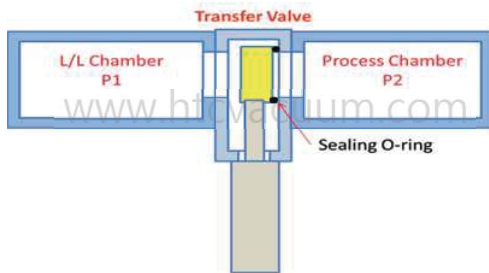
| Model No.   | Parts No. | Body     | Gate     | Actuated time         | Gate seal | Cycle Life | Weight |
|-------------|-----------|----------|----------|-----------------------|-----------|------------|--------|
| GRB-A-32222 | GR01A213  | A6061-T6 | A6061-T6 | open<=1<br>close<=1   | Viton     | 1 million  | 15kg   |
| GRB-A-46236 | GR02A213  | A6061-T6 | A6061-T6 | open<=1<br>close<=1   | Viton     | 1 million  | 16kg   |
| GRB-A-50336 | GR03A213  | A6061-T6 | A6061-T6 | open<=1<br>close<=1   | Viton     | 2 million  | 21kg   |
| GRB-A-56496 | GR04A213  | A6061-T6 | A6061-T6 | open<=2<br>close<=3.5 | Viton     | 1 million  | 29kg   |
| GRB-S-32222 | GR01A113  | 304S.S.  | 304S.S.  | open<=1<br>close<=1   | Viton     | 1 million  | 20kg   |
| GRB-S-46236 | GR02A113  | 304 S.S. | 304 S.S. | open<=1<br>close<=1   | Viton     | 1 million  | 22kg   |
| GRB-S-50336 | GR03A113  | 304 S.S. | 304 S.S. | open <=1<br>close<=1  | Viton     | 2 million  | 34kg   |
| GRB-S-56496 | GR04A113  | 304 S.S. | 304 S.S. | open<=2<br>close<=3.5 | Viton     | 1 million  | 49kg   |

| Model No.   | Parts No. | D   | D1 | D2  | D3 | D4    | D5   | A  | B   | C   | E   | H  | K   | K1 | K2   | L     | M   |
|-------------|-----------|-----|----|-----|----|-------|------|----|-----|-----|-----|----|-----|----|------|-------|-----|
| GRB-A-32222 | GR01A213  | 222 | 32 | 311 | 50 | 105   | 61.5 | 50 | 310 | 300 | 285 | 49 | 340 | 83 | 28.5 | 501.5 | 224 |
| GRB-A-46236 | GR02A213  | 236 | 46 | 325 | 50 | 112   | 61.5 | 50 | 310 | 300 | 285 | 49 | 340 | 83 | 28.5 | 508.5 | 224 |
| GRB-A-50336 | GR03A213  | 336 | 50 | 422 | 50 | 112   | 63   | 60 | 410 | 400 | 385 | 59 | 440 | 83 | 30   | 475   | 250 |
| GRB-A-56496 | GR04A213  | 496 | 56 | 540 | 61 | 117.5 | 66   | 70 | 570 | 560 | 545 | 69 | 600 | 94 | 33   | 513.5 | 282 |
| GRB-S-32222 | GR01A113  | 222 | 32 | 311 | 50 | 105   | 61.5 | 50 | 310 | 300 | 285 | 49 | 340 | 83 | 28.5 | 501.5 | 224 |
| GRB-S-46236 | GR02A113  | 236 | 46 | 325 | 50 | 112   | 61.5 | 50 | 310 | 300 | 285 | 49 | 340 | 83 | 28.5 | 508.5 | 224 |
| GRB-S-50336 | GR03A113  | 336 | 50 | 422 | 50 | 112   | 63   | 60 | 410 | 400 | 385 | 59 | 440 | 83 | 30   | 475   | 250 |
| GRB-S-56496 | GR04A113  | 496 | 56 | 540 | 61 | 117.5 | 66   | 70 | 570 | 560 | 545 | 69 | 600 | 94 | 33   | 513.5 | 282 |



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

|                                            |                                    |                             |
|--------------------------------------------|------------------------------------|-----------------------------|
| Spindle sealing                            | Bellows                            |                             |
| Leak rates                                 | Body                               | $1 \times 10^{-9}$ mbar.l/s |
|                                            | Seat                               | $1 \times 10^{-9}$ mbar.l/s |
| Surface Treatment (Body)                   | Electrolytic polishing             |                             |
| Bakeable Temperature                       | Body                               | <90°C                       |
|                                            | Driving module                     | <60°C                       |
| Differential pressure on the gate (Note *) | Forward pressure difference        | $\leq 1.2$ bar              |
|                                            | Reverse pressure difference        | $\leq 1.0$ bar              |
| Differential pressure at opening (Note**)  | <10 mbar                           |                             |
| Pressure Range                             | $1 \times 10^{-8}$ mbar to 1.0 bar |                             |
| Driving pressure                           | 5~7 Kg/cm <sup>2</sup>             |                             |
| Compressed air connection                  | Ø 6 mm                             |                             |
| Standard Seal                              | Gate                               | Viton O'ring                |
| Position sensor (Standard)                 | DC4-24(V) or AC4-240(V), 5-40 mA   |                             |
| Solenoid (Optional)                        | DC24(V) ,AC24(V),AC110(V),AC220(V) |                             |
| Mounting position                          | Actuator up, down                  |                             |



## 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

Ø10x15L

Clamp single

clamp AL

Part No:2121A211

Fixture for maintenance

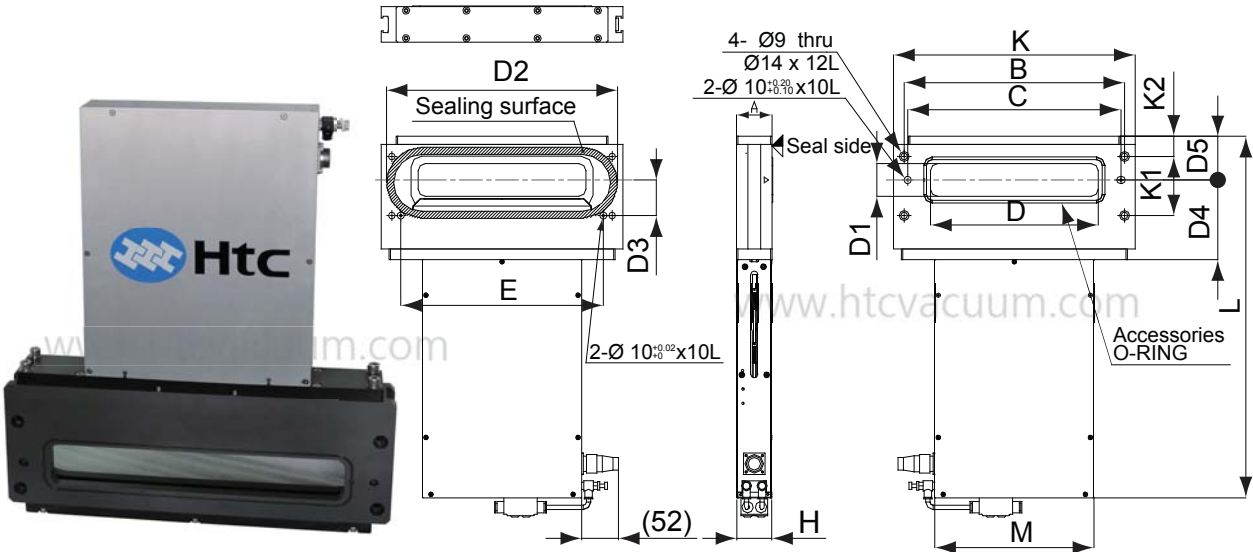
Part No: GR03A213323



➤ Rectangular transfer valve

Pneumatic (with bellows)

Hard anodized



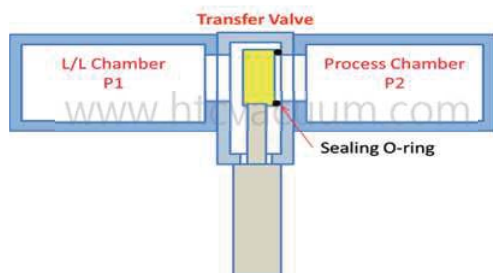
| Model No.    | Parts No. | Body     | Gate     | Actuated time         | Gate seal | Cycle Life | Weight |
|--------------|-----------|----------|----------|-----------------------|-----------|------------|--------|
| GRB-HA-32222 | GR01A713  | A6061-T6 | A6061-T6 | open<=1<br>close<=1   | Viton     | 1 million  | 15kg   |
| GRB-HA-46236 | GR02A713  | A6061-T6 | A6061-T6 | open<=1<br>close<=1   | Viton     | 1 million  | 16kg   |
| GRB-HA-50336 | GR03A713  | A6061-T6 | A6061-T6 | open<=1<br>close<=1   | Viton     | 2 million  | 21kg   |
| GRB-HA-56496 | GR04A713  | A6061-T6 | A6061-T6 | open<=2<br>close<=3.5 | Viton     | 1 million  | 29kg   |

| Model No.    | Parts No. | D   | D1 | D2  | D3 | D4    | D5   | A  | B   | C   | E   | H  | K   | K1 | K2   | L     | M   |
|--------------|-----------|-----|----|-----|----|-------|------|----|-----|-----|-----|----|-----|----|------|-------|-----|
| GRB-HA-32222 | GR01A713  | 222 | 32 | 311 | 50 | 105   | 61.5 | 50 | 310 | 300 | 285 | 49 | 340 | 83 | 28.5 | 501.5 | 224 |
| GRB-HA-46236 | GR02A713  | 236 | 46 | 325 | 50 | 112   | 61.5 | 50 | 310 | 300 | 285 | 49 | 340 | 83 | 28.5 | 508.5 | 224 |
| GRB-HA-50336 | GR03A713  | 336 | 50 | 422 | 50 | 112   | 63   | 60 | 410 | 400 | 385 | 59 | 440 | 83 | 30   | 475   | 250 |
| GRB-HA-56496 | GR04A713  | 496 | 56 | 540 | 61 | 117.5 | 66   | 70 | 570 | 560 | 545 | 69 | 600 | 94 | 33   | 513.5 | 282 |



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

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



## Note :

\* Differential pressure on the gate

Forward and reverse pressure difference definitions:

Forward pressure difference (  $P_1 > P_2$  ) =  $P_1 - P_2$

Reverse pressure difference (  $P_1 < P_2$  ) =  $P_2 - P_1$

\*\* Differential pressure at opening =  $P_1 - P_2 < 10$  mbar



32x222 M8x50L

46x236 M8x50L

50x336 M8x60L

46x496 M8x70L

PIN  
Ø10x15L

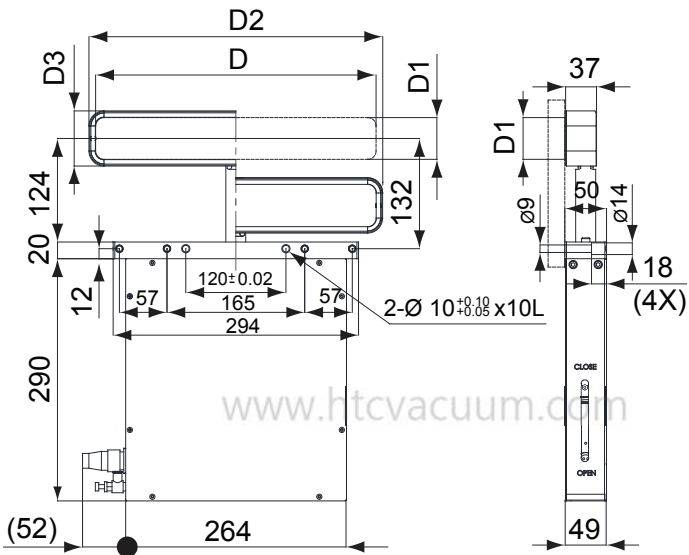
Clamp single  
clamp AL  
Part No:2121A211

Fixture for maintenance  
Part No:GR03A213323





 Rectangular doors valve



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

## Rectangular doors valve Technical Data

|                            |                                     |              |
|----------------------------|-------------------------------------|--------------|
| Cycle Life                 | 1 million                           |              |
| Leak rates                 | 1 x 10 <sup>-9</sup> mbar.l/s       |              |
| Bakeable Temperature       | Body                                | <90°C        |
|                            | Driving module                      | <60°C        |
| Pressure Range             | 1* 10 <sup>-8</sup> mbar to 1.0 bar |              |
| Driving pressure           | 5~7 Kg/cm <sup>2</sup>              |              |
| Compressed air connection  | Ø 6 mm                              |              |
| Standard Seal              | Gate                                | Viton O'ring |
| Position sensor (Standard) | DC4-24(V) or AC4-240(V), 5-40 mA    |              |
| Solenoid (Optional)        | DC24(V) ,AC24(V),AC110(V),AC220(V)  |              |
| Mounting position          | Actuator up, down                   |              |

## Accessories :



M8x45L



PIN Ø10x15L