

# 11000

## Standard Cycle Gate Valves

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## Introduction

11000



Model Number 11120-0400  
4" ID (DN100) Manual CF-F

### Product Features

- HV and UHV with stainless steel body and internal components
- Sizes from 0.625" ID (DN16) to 32" ID (DN800)
- Manual and pneumatic actuation
- Stainless steel welded bellows
- Standard KF, ISO, CF, ANSI, JIS or custom flange options
- Roughing, gauge, purge ports available
- High temperature options up to 250°C
- Positive mechanical lock
- Easily customizable to work with almost any application
- Designed, manufactured and assembled in the USA

### Description

The 11000 Series Gate Valves feature a positive lock-over center mechanism or soft closure with pneumatic lock (optional). Valves maintain a closed status in the event of an air pressure loss. Linear actuation allows the use of a welded bellows to seal the actuator (i.e. no rotary seals). Shock and vibration are reduced to a minimum by a unique air cylinder design. This feature is extremely beneficial for semiconductor fabrication and other sensitive processes that require operation that is relatively free of vibration. The HVA stainless steel body offers one of the smallest interior surface areas in the vacuum valve industry. The body and all major internal components are vacuum furnace brazed at 1100°C, at  $1 \times 10^{-6}$  mbar, ensuring maximum joint integrity. This eliminates the possibility of virtual leaks or entrapment areas and minimizes body distortion found in conventionally welded valves. For maintenance purposes, the carriage assembly can be removed from the body without removing the valve from the system.

### Applications

KF Flanges, ISO Bolted and Clamped Flanges, ANSI and optional JIS Models are designed for high vacuum applications, specifically when pressure ranges approximate  $1 \times 10^{-9}$  mbar and bakeout temperatures do not exceed 250°C. Metal-sealed CF-F flanges provide compatibility with UHV systems. The international KF/ISO configurations and elastomer O-ring flanges are used in areas that require an easily mountable and demountable flange-type seal. These valves provide valving for cryopumps, turbomolecular pumps, ion pumps and other applications requiring clean, low outgassing valves.

### Million Cycle Configuration

The high vacuum, pneumatic gate valves may be configured for a million cycle operation until service. Details are found in pages 25-44 of this catalog. All cycling counts are application dependent.

### Standard Specifications

#### Materials

Valve body and mechanism	304 stainless steel
Welded bellows shaft seal	AM-350
Bonnet / gate seals	
HV	Viton® elastomer
UHV	OFHC copper / Viton® elastomer

#### Vacuum

Pressure range	
HV	$1 \times 10^{-9}$ mbar
UHV	$1 \times 10^{-10}$ mbar
Leak rate	$< 2 \times 10^{-9}$ mbar l/s
Differential pressure	1 bar in either direction
Maximum $\Delta$ pressure before opening	$\leq 30$ mbar

#### Temperature

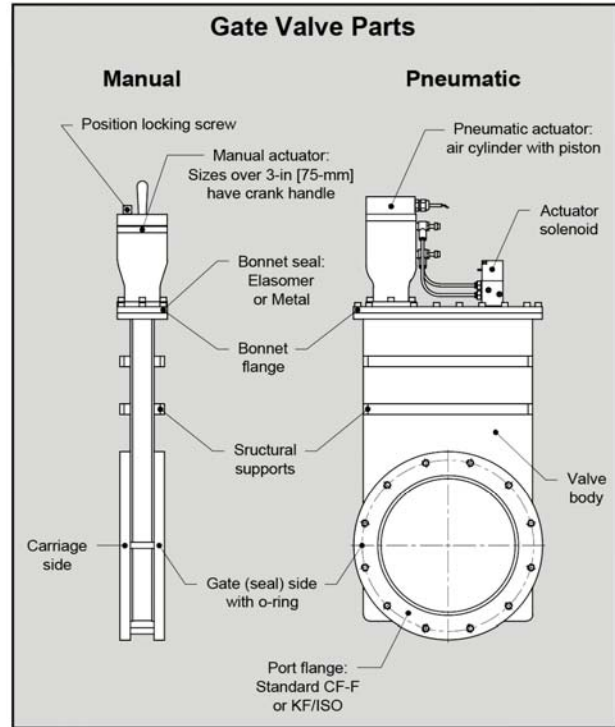
	without solenoid
Elastomer sealed bonnet	150°C
Metal sealed bonnet	
Valve open	200°C
Valve closed	150°C
Actuator	
Manual	60°C
Pneumatic	60°C

#### Mechanism

Air service	80 psig (5.5 bar)
Solenoid	4.0 Watts
supplied voltage	120 VAC 50/60 Hz
optional voltage	24, 200, 240 VAC 50/60 Hz or 12, 24 VDC
Position indicator, max.	115 VAC or 28 VDC, 20 mA

#### Cycles Until Service

	100,000
(Application dependent)	



#### Notes

- Dimensions given in U.S. System and [metric]
- Conductance ratings based on air, given in liters per second
- Due to ongoing product development, prices, dimensions and specifications are subject to change without notice

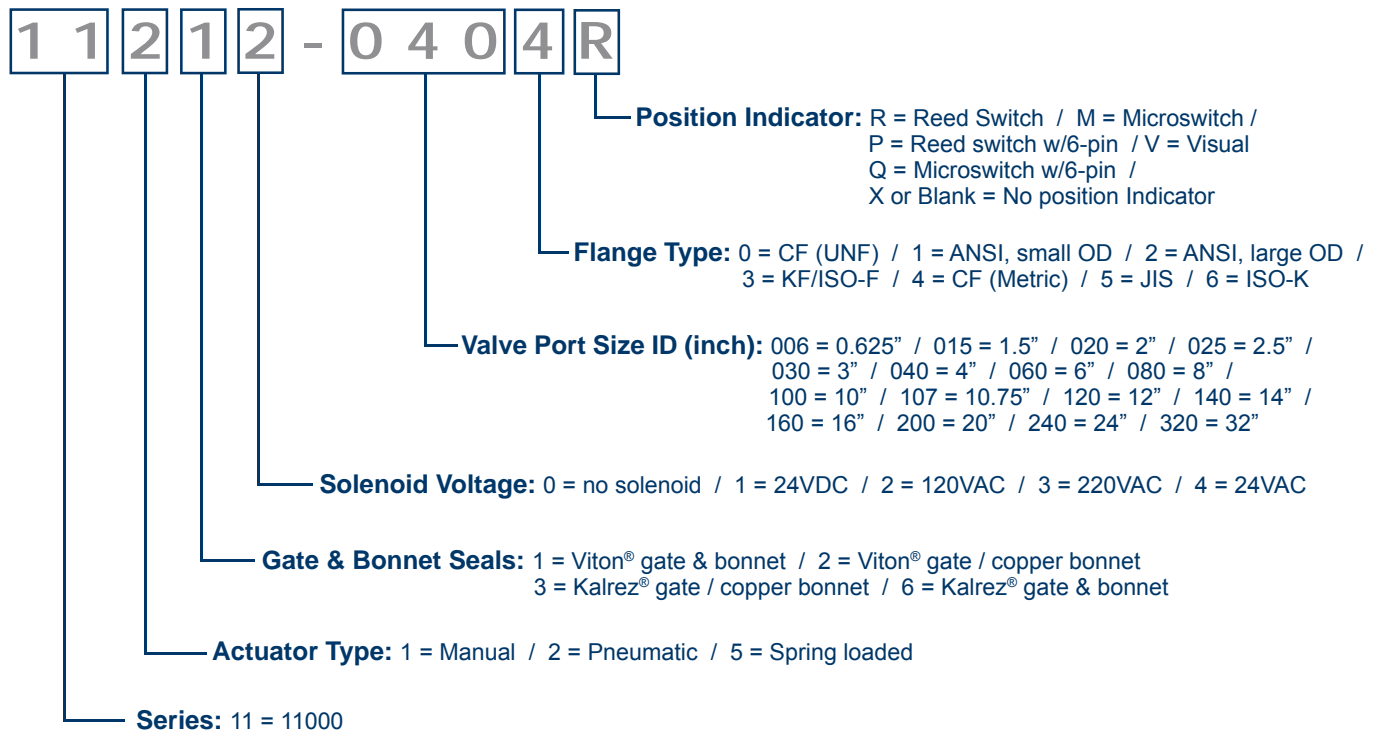
#### Options

- All 11000 Series Valves may be equipped with alternative flanges, solenoids and seals. Contact HVA to discuss your requirements.
- Alternate voltage controls
  - JIS configurations and custom flange sizes
  - Gauge ports, roughing ports and purge ports
  - Microswitches for position indicators
  - Million Cycle option ~ see pages 25-44
  - Quick clamp bonnet
  - Low profile actuators
  - Spring loaded: Air-to-open, Spring-to-close, on sizes up to 6" [DN150]
  - High temperature components, including O-rings, microswitches and actuator
  - Water cooled flanges
  - Custom materials, such as Inconel® or Kalrez®
  - Special solenoid or position indicator connectors

## Model Key guide

11000

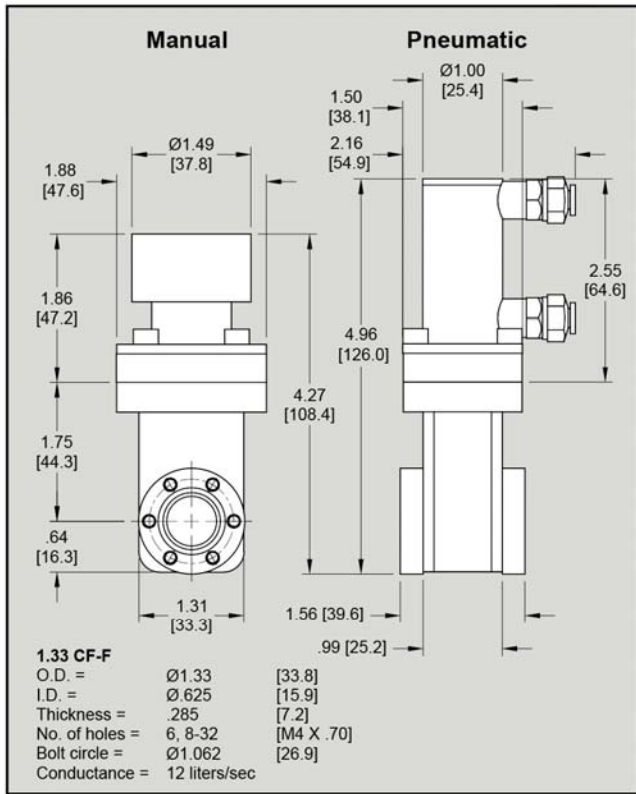
**Example:** 11212-0404R = 11000 Series gate valve, pneumatic actuator, Viton gate and bonnet seals, 120VAC solenoid, 4" ID CF (6" OD) flanges with Metric thread, reed switch position indicator



### Note

- A suffix of -001 to -999 at the end of or a '9' or 'S' within a Model Number indicates a valve with custom configuration.
- If a roughing/gauge/purge port is needed add the following after the position indicator:

A = KF 25  
 B = KF 40  
 C = 1.33" OD CF fixed with thru holes  
 D = 2.75" OD CF fixed with thru holes  
 S = special/custom or other



CF-F 1.33 Flanges			16-mm .625-inch
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	U.S. Bolt	3 [1]	11110-0060
Copper-Viton (UHV)	U.S. Bolt	3 [1]	11120-0060
<b>Pneumatic</b>			
Viton-Viton (HV)	U.S. Bolt	3 [1]	11212-0060
Copper-Viton (UHV)	U.S. Bolt	3 [1]	11222-0060

\* For metric flanges, replace last 0 in model number with 4

**Specifications**

**HV Pressure Range:**  $1 \times 10^{-9}$  mbar  
**UHV Pressure Range:**  $1 \times 10^{-10}$  mbar  
**Helium Leak Rate: Materials:**  $< 2 \times 10^{-9}$  mbar l/s

**Maximum  $\Delta$  Pressure Before Opening:**  $\leq 30$  mbar

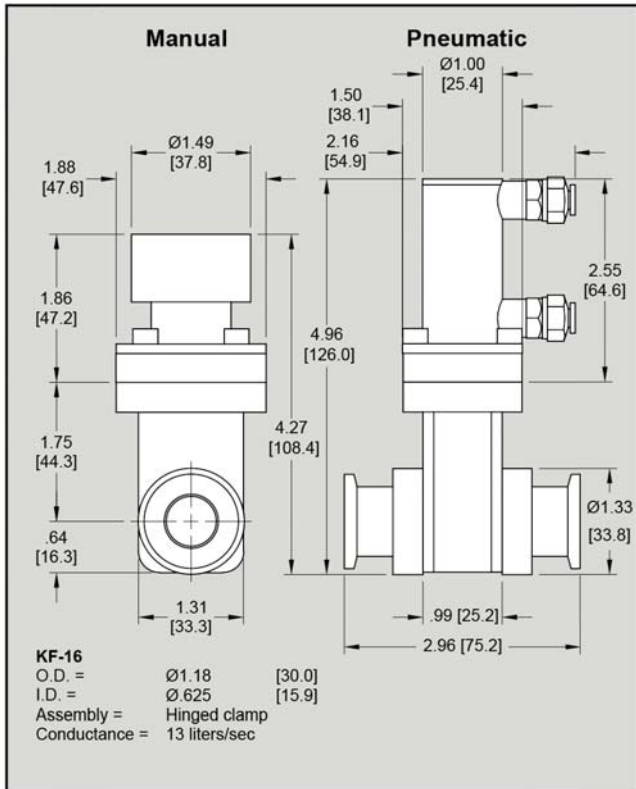
**Materials:**

- Body = 304 Stainless Steel
- Gate = 304 Stainless Steel
- Bellows = AM-350
- Actuator = 6061-T6 Aluminum

**Operating Temperature:**

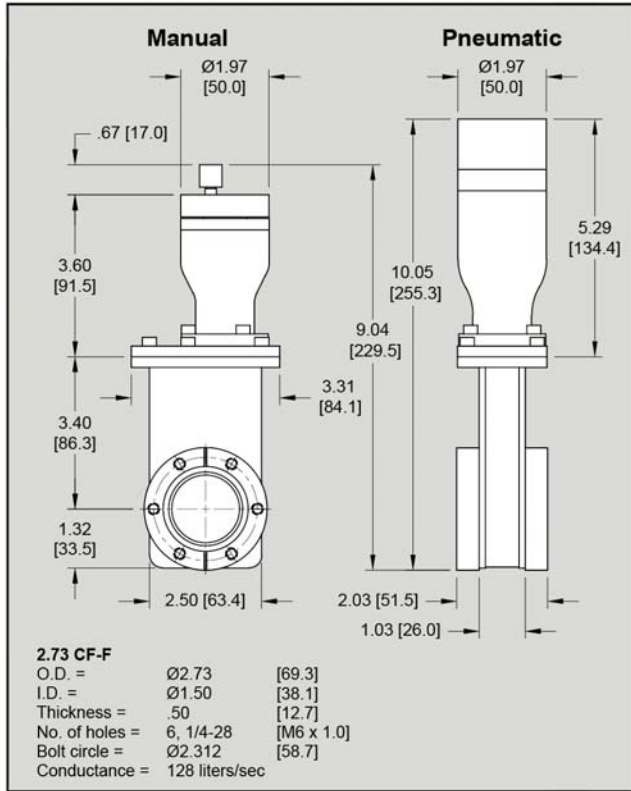
- Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*
- Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*
- Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*
- Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

\*250°C options available on request.



KF-16 Flanges			16-mm .625-inch
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number
<b>Manual</b>			
Viton-Viton (HV)	Hinged clamp	3 [1]	11110-0063
<b>Pneumatic</b>			
Viton-Viton (HV)	Hinged clamp	3 [1]	11212-0063





CF-F 2.73 Flanges			40-mm 1.5-inch
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	U.S. Bolt	10 [5]	11110-0150
Copper-Viton (UHV)	U.S. Bolt	10 [5]	11120-0150
<b>Pneumatic</b>			
Viton-Viton (HV)	U.S. Bolt	10 [5]	11212-0150R
Copper-Viton (UHV)	U.S. Bolt	10 [5]	11222-0150R

\* For metric flanges, replace last 0 in model number with 4

For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional

**Specifications**

**HV Pressure Range:**

1 x 10<sup>-9</sup> mbar

**UHV Pressure Range:**

1 x 10<sup>-10</sup> mbar

**Helium Leak Rate: Materials:**

< 2 x 10<sup>-9</sup> mbar l/s

**Maximum Δ Pressure Before Opening:**

≤ 30 mbar

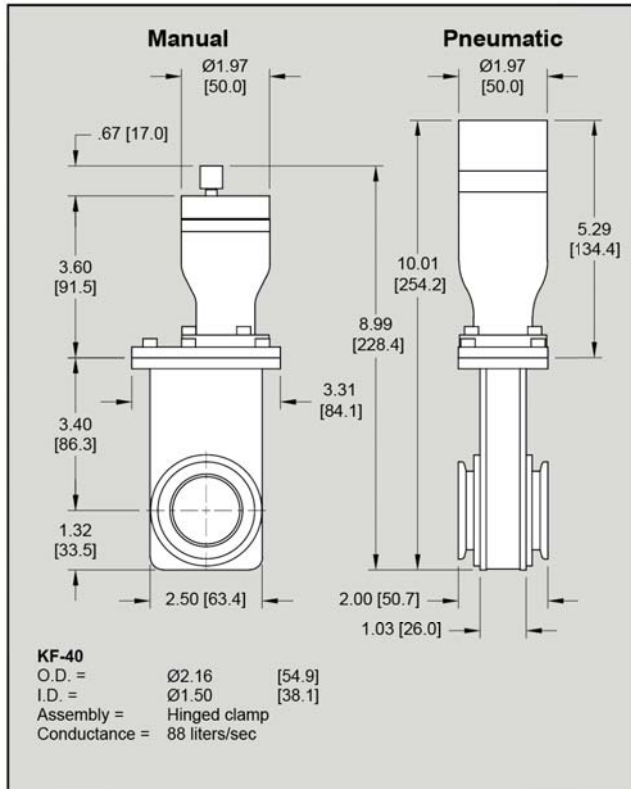
**Materials:**

- Body = 304 Stainless Steel
- Gate = 304 Stainless Steel
- Bellows = AM-350
- Actuator = 6061-T6 Aluminum

**Operating Temperature:**

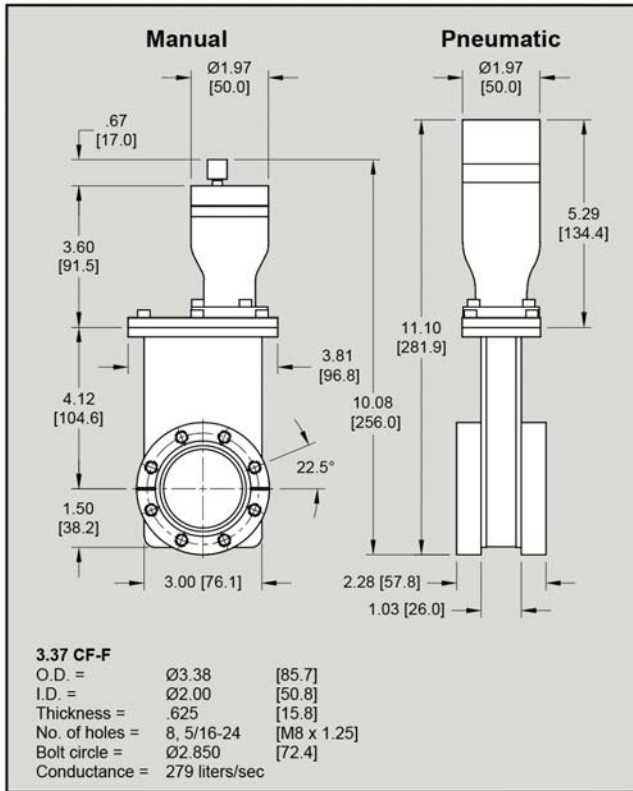
- Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*
- Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*
- Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*
- Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

\*250°C options available on request.



KF-40 Flanges			40-mm 1.5-inch
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	Hinged clamp	10 [5]	11110-0153
<b>Pneumatic</b>			
Viton-Viton (HV)	Hinged clamp	10 [5]	11212-0153R

\* For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional



CF-F 3.37 Flanges		50-mm 2.0-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	U.S. Bolt	10 [5]	11110-0200
Copper-Viton (UHV)	U.S. Bolt	10 [5]	11120-0200
<b>Pneumatic</b>			
Viton-Viton (HV)	U.S. Bolt	10 [5]	11212-0200R
Copper-Viton (UHV)	U.S. Bolt	10 [5]	11222-0200R

\* For metric flanges, replace last 0 in model number with 4

For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional

**Specifications**

**HV Pressure Range:**

1 x 10<sup>-9</sup> mbar

**UHV Pressure Range:**

1 x 10<sup>-10</sup> mbar

**Helium Leak Rate: Materials:**

< 2 x 10<sup>-9</sup> mbar l/s

**Maximum Δ Pressure Before Opening:**

≤ 30 mbar

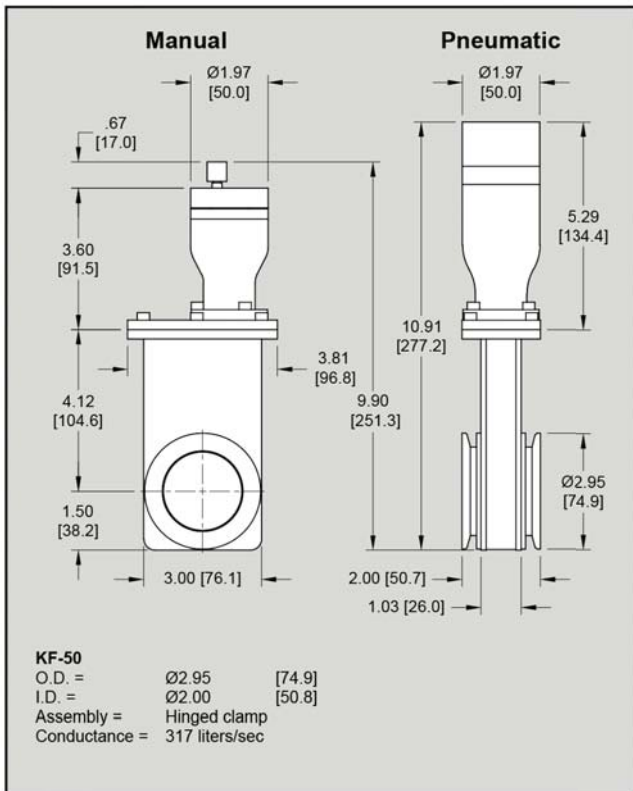
**Materials:**

- Body = 304 Stainless Steel
- Gate = 304 Stainless Steel
- Bellows = AM-350
- Actuator = 6061-T6 Aluminum

**Operating Temperature:**

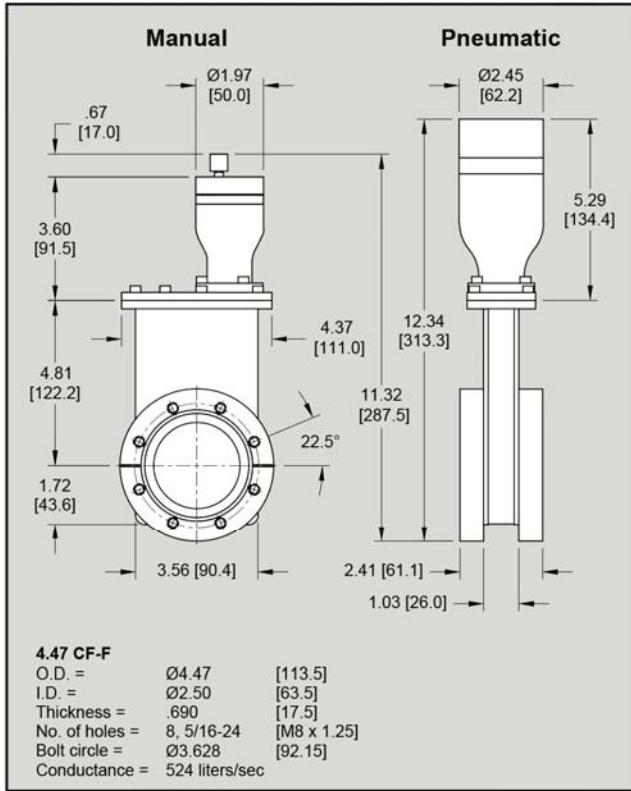
- Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*
- Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*
- Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*
- Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

\*250°C options available on request.



KF-50 Flanges		50-mm 2.0-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	Hinged clamp	13 [6]	11110-0203
<b>Pneumatic</b>			
Viton-Viton (HV)	Hinged clamp	13 [6]	11212-0203R

\* For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional



CF-F 4.47 Flanges			63-mm 2.5-inch
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	U.S. Bolt	10 [5]	11110-0250
Copper-Viton (UHV)	U.S. Bolt	10 [5]	11120-0250
<b>Pneumatic</b>			
Viton-Viton (HV)	U.S. Bolt	10 [5]	11212-0250R
Copper-Viton (UHV)	U.S. Bolt	10 [5]	11222-0250R

\* For metric flanges, replace last 0 in model number with 4

For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional

**Specifications**

**HV Pressure Range:**

1 x 10<sup>-9</sup> mbar

**UHV Pressure Range:**

1 x 10<sup>-10</sup> mbar

**Helium Leak Rate: Materials:**

< 2 x 10<sup>-9</sup> mbar l/s

**Maximum Δ Pressure Before Opening:**

≤ 30 mbar

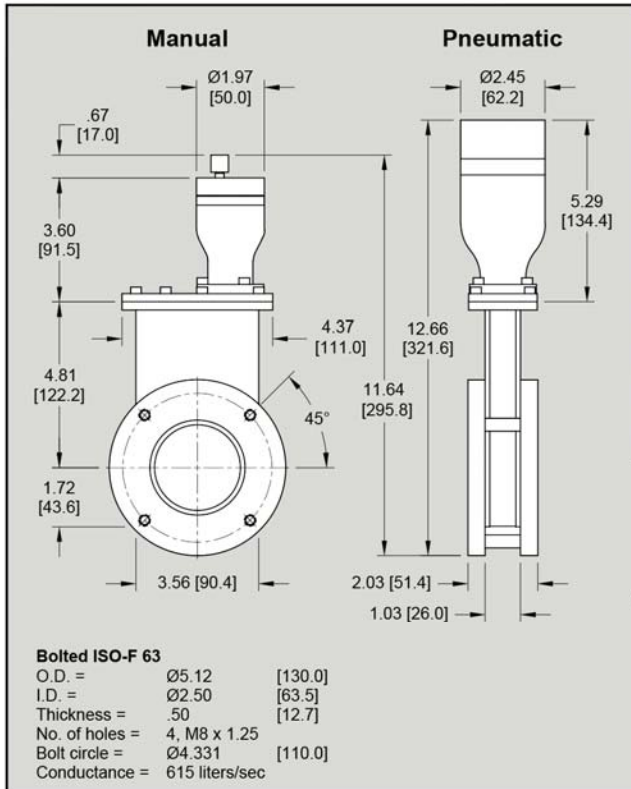
**Materials:**

- Body = 304 Stainless Steel
- Gate = 304 Stainless Steel
- Bellows = AM-350
- Actuator = 6061-T6 Aluminum

**Operating Temperature:**

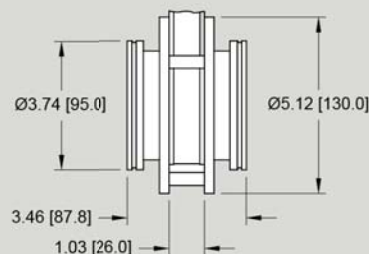
- Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*
- Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*
- Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*
- Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

\*250°C options available on request.



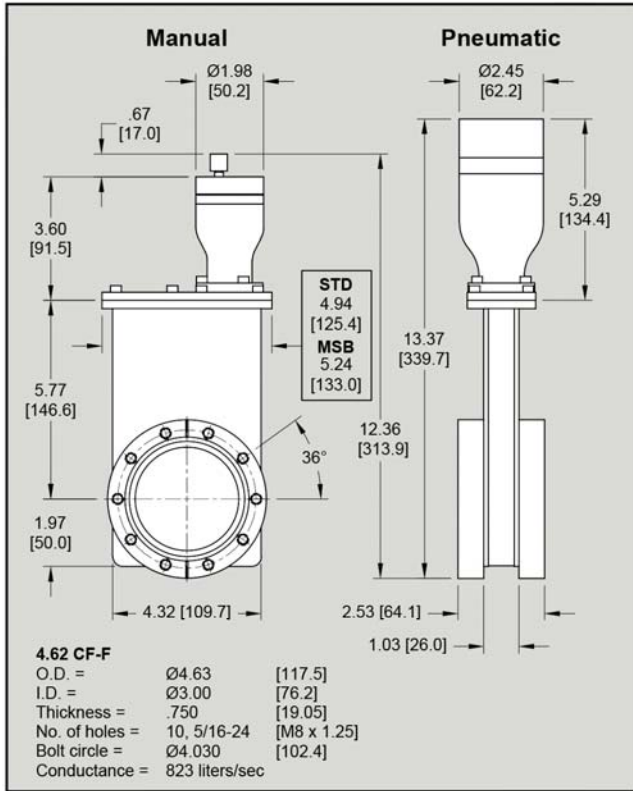
ISO-63 Flanges			63-mm 2.5-inch
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	Metric Bolt	18 [8]	11110-0253
Viton-Viton (HV)	Clamp	25 [11]	11110-0256
<b>Pneumatic</b>			
Viton-Viton (HV)	Metric Bolt	18 [8]	11212-0253R
Viton-Viton (HV)	Clamp	25 [11]	11212-0256R

\* For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional



**Clamped ISO-K 63**  
 O.D. = Ø3.74 [110.0]  
 I.D. = Ø2.50 [76.2]  
 Thickness = .472 [12.0]  
 No. of clamps = 3-4  
 Conductance = 363 liters/sec





CF-F 4.62 Flanges			75-mm 3.0-inch
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	U.S. Bolt	22 [10]	11110-0300
Copper-Viton (UHV)	U.S. Bolt	35 [15]	11120-0300
<b>Pneumatic</b>			
Viton-Viton (HV)	U.S. Bolt	22 [10]	11212-0300R
Copper-Viton (UHV)	U.S. Bolt	35 [15]	11222-0300R

\* For metric flanges, replace last 0 in model number with 4

For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional

**Specifications**

**HV Pressure Range:**

$1 \times 10^{-9}$  mbar

**UHV Pressure Range:**

$1 \times 10^{-10}$  mbar

**Helium Leak Rate: Materials:**

$< 2 \times 10^{-9}$  mbar l/s

**Maximum  $\Delta$  Pressure Before Opening:**

$\leq 30$  mbar

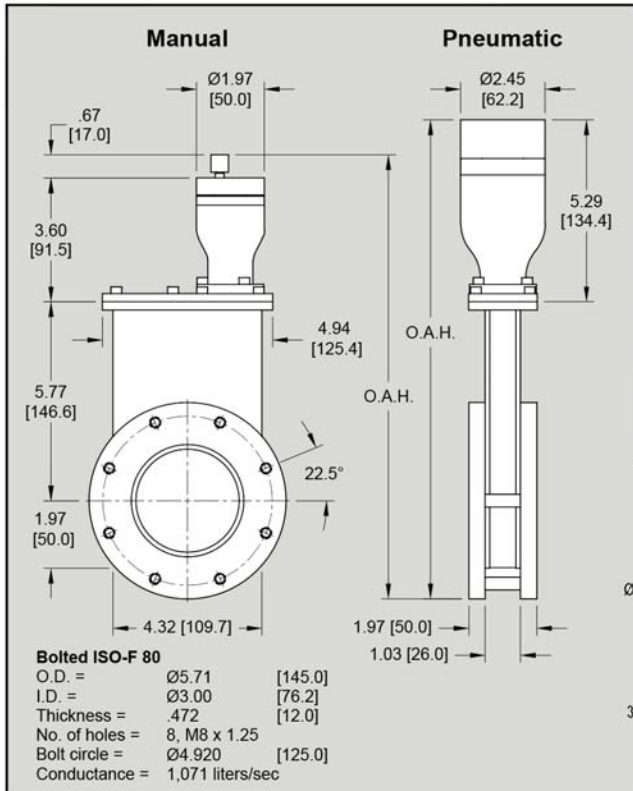
**Materials:**

- Body = 304 Stainless Steel
- Gate = 304 Stainless Steel
- Bellows = AM-350
- Actuator = 6061-T6 Aluminum

**Operating Temperature:**

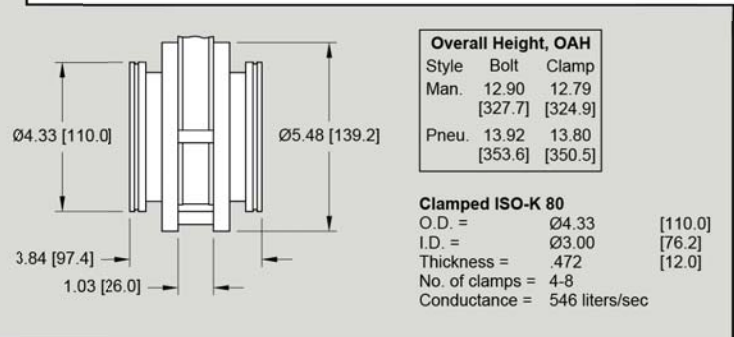
- Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*
- Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*
- Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*
- Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

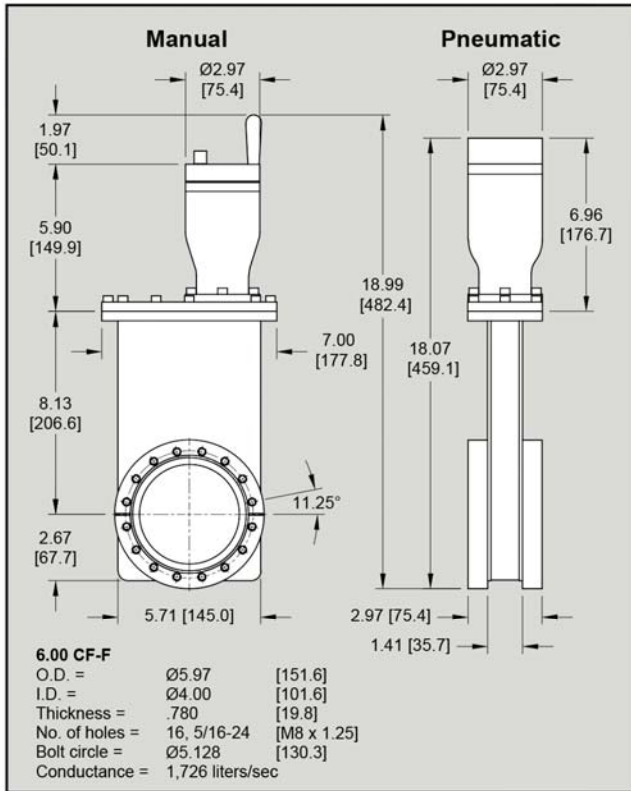
\*250°C options available on request.



ISO-80 Flanges			75-mm 3.0-inch
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	Metric Bolt	22 [10]	11110-0303
Viton-Viton (HV)	Clamp	35 [15]	11110-0306
<b>Pneumatic</b>			
Viton-Viton (HV)	Metric Bolt	22 [10]	11212-0303R
Viton-Viton (HV)	Clamp	35 [15]	11212-0306R

\* For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional





CF-F 6.00 Flanges			100-mm 4.0-inch
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	U.S. Bolt	33 [15]	11110-0400
Copper-Viton (UHV)	U.S. Bolt	33 [15]	11120-0400
<b>Pneumatic</b>			
Viton-Viton (HV)	U.S. Bolt	33 [15]	11212-0400R
Copper-Viton (UHV)	U.S. Bolt	33 [15]	11222-0400R

\* For metric flanges, replace last 0 in model number with 4

For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional

### Specifications

**HV Pressure Range:**

1 x 10<sup>-9</sup> mbar

**UHV Pressure Range:**

1 x 10<sup>-10</sup> mbar

**Helium Leak Rate: Materials:**

< 2 x 10<sup>-9</sup> mbar l/s

**Maximum Δ Pressure Before Opening:**

≤ 30 mbar

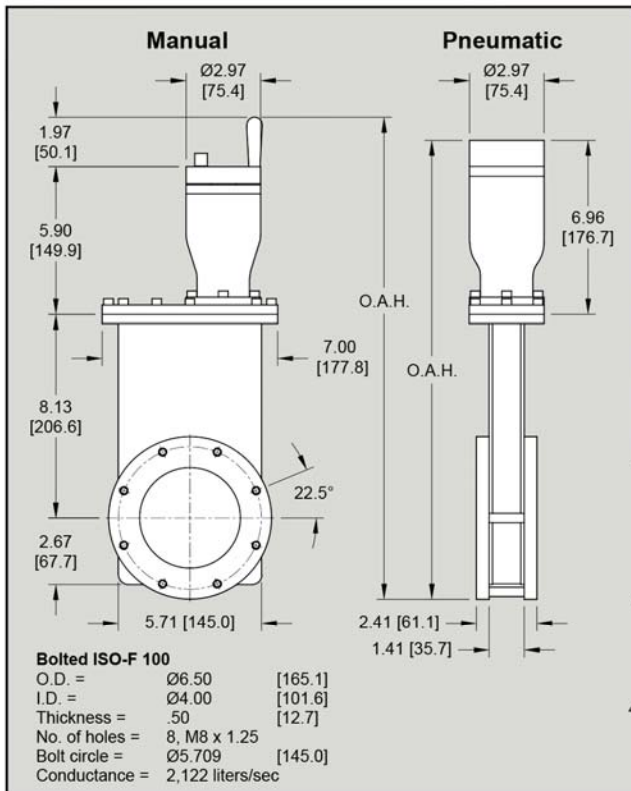
**Materials:**

- Body = 304 Stainless Steel
- Gate = 304 Stainless Steel
- Bellows = AM-350
- Actuator = 6061-T6 Aluminum

**Operating Temperature:**

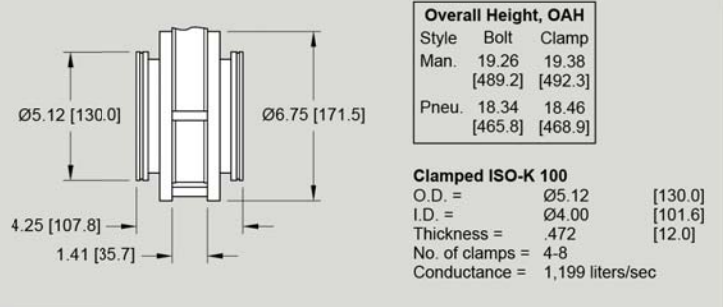
- Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*
- Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*
- Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*
- Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

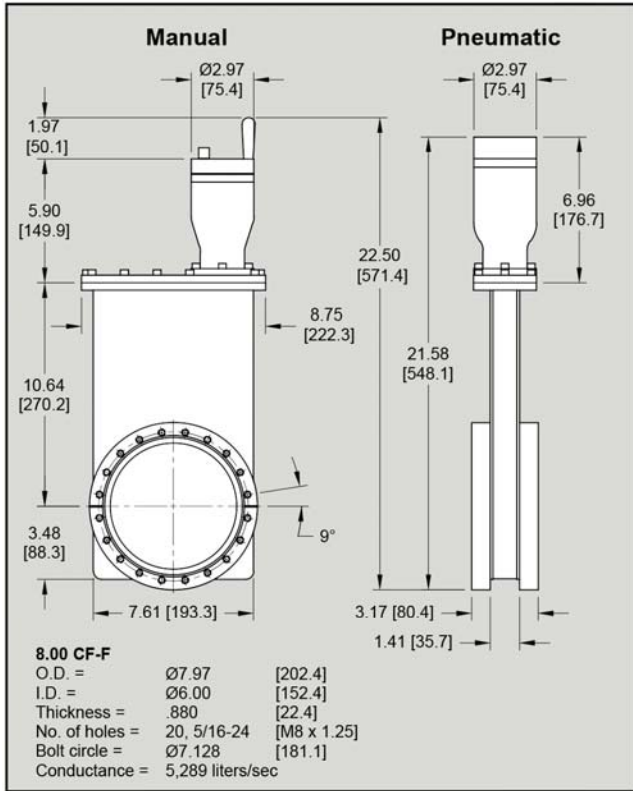
\*250°C options available on request.



ISO-100 Flanges			100-mm 4.0-inch
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	Metric Bolt	33 [15]	11110-0403
Viton-Viton (HV)	Clamp	43 [20]	11110-0406
<b>Pneumatic</b>			
Viton-Viton (HV)	Metric Bolt	33 [15]	11212-0403R
Viton-Viton (HV)	Clamp	43 [20]	11212-0406R

\* For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional





CF-F 8.00 Flanges			150-mm 6.0-inch
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	U.S. Bolt	50 [23]	11110-0600
Copper-Viton (UHV)	U.S. Bolt	50 [23]	11120-0600
<b>Pneumatic</b>			
Viton-Viton (HV)	U.S. Bolt	50 [23]	11212-0600R
Copper-Viton (UHV)	U.S. Bolt	50 [23]	11222-0600R

\* For metric flanges, replace last 0 in model number with 4

For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional

**Specifications**

**HV Pressure Range:**

1 x 10<sup>-9</sup> mbar

**UHV Pressure Range:**

1 x 10<sup>-10</sup> mbar

**Helium Leak Rate: Materials:**

< 2 x 10<sup>-9</sup> mbar l/s

**Maximum Δ Pressure Before Opening:**

≤ 30 mbar

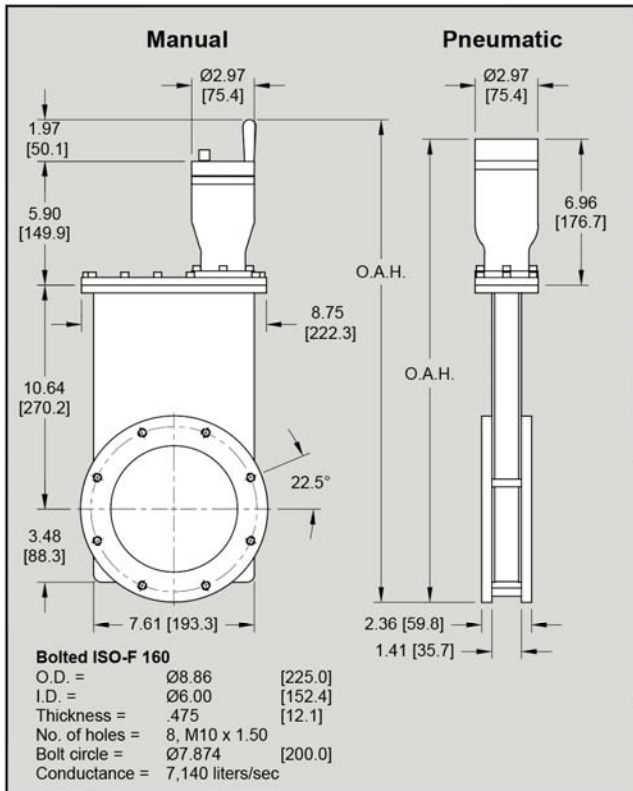
**Materials:**

- Body = 304 Stainless Steel
- Gate = 304 Stainless Steel
- Bellows = AM-350
- Actuator = 6061-T6 Aluminum

**Operating Temperature:**

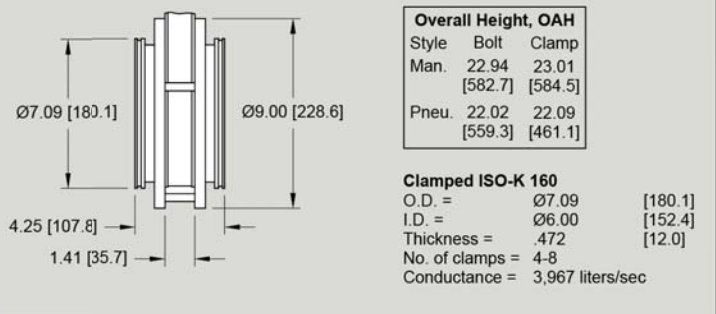
- Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*
- Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*
- Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*
- Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

\*250°C options available on request.

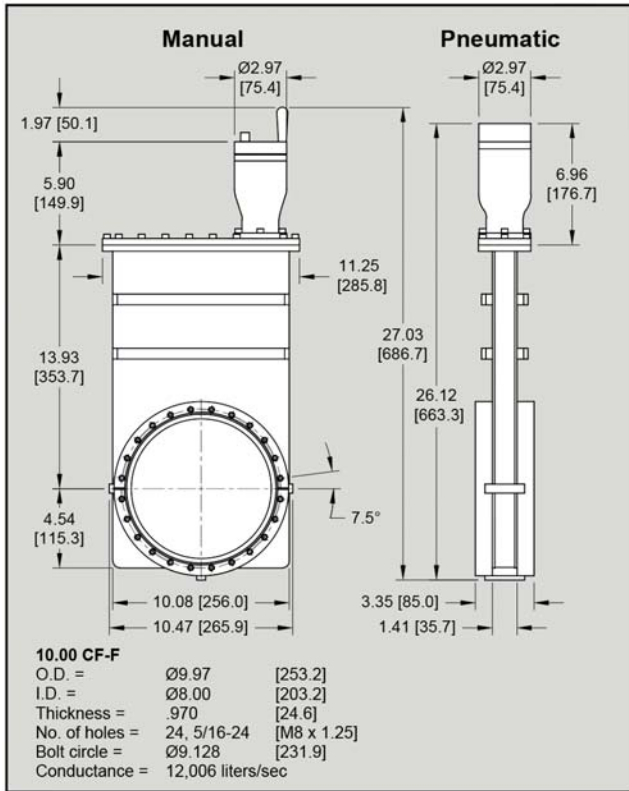


ISO-160 Flanges			150-mm 6.0-inch
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	Metric Bolt	50 [23]	11110-0603
Viton-Viton (HV)	Clamp	70 [32]	11110-0606
<b>Pneumatic</b>			
Viton-Viton (HV)	Metric Bolt	50 [23]	11212-0603R
Viton-Viton (HV)	Clamp	70 [32]	11212-0606R

\* For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional







CF-F 10.00 Flanges		200-mm 8.0-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	U.S. Bolt	75 [34]	11110-0800
Copper-Viton (UHV)	U.S. Bolt	75 [34]	11120-0800
<b>Pneumatic</b>			
Viton-Viton (HV)	U.S. Bolt	75 [34]	11212-0800R
Copper-Viton (UHV)	U.S. Bolt	75 [34]	11222-0800R

\* For metric flanges, replace last 0 in model number with 4

For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional

### Specifications

**HV Pressure Range:**

1 x 10<sup>-9</sup> mbar

**UHV Pressure Range:**

1 x 10<sup>-10</sup> mbar

**Helium Leak Rate: Materials:**

< 2 x 10<sup>-9</sup> mbar l/s

**Maximum Δ Pressure Before Opening:**

≤ 30 mbar

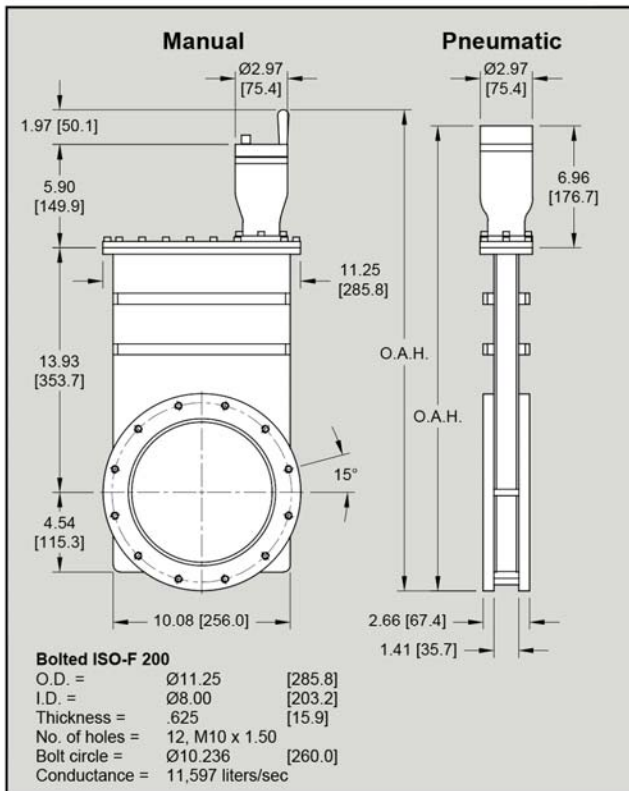
**Materials:**

Body = 304 Stainless Steel  
 Gate = 304 Stainless Steel  
 Bellows = AM-350  
 Actuator = 6061-T6 Aluminum

**Operating Temperature:**

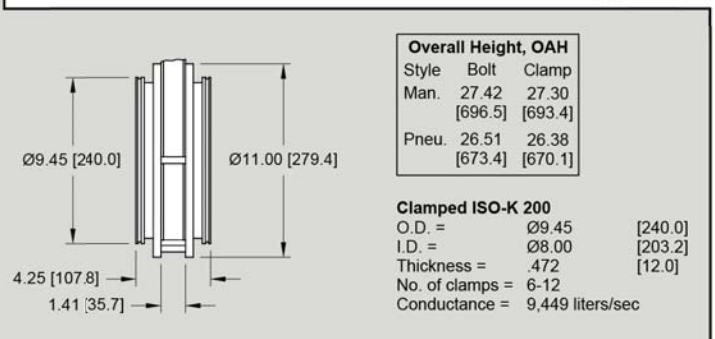
Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*  
 Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*  
 Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*  
 Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

\*250°C options available on request.



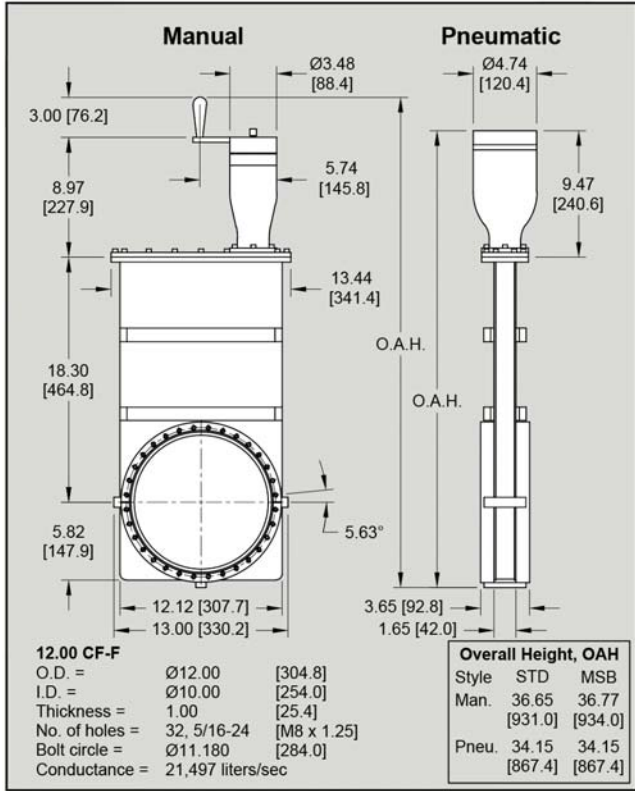
ISO-200 Flanges		200-mm 8.0-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	Metric Bolt	75 [34]	11110-0803
Viton-Viton (HV)	Clamp	95 [43]	11110-0806
<b>Pneumatic</b>			
Viton-Viton (HV)	Metric Bolt	75 [34]	11212-0803R
Viton-Viton (HV)	Clamp	95 [43]	11212-0806R

\* For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional



Overall Height, OAH		
Style	Bolt	Clamp
Man.	27.42 [696.5]	27.30 [693.4]
Pneu.	26.51 [673.4]	26.38 [670.1]





CF-F 12.00 Flanges		250-mm 10.0-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	U.S. Bolt	147 [67]	11110-1000
Copper-Viton (UHV)	U.S. Bolt	147 [67]	11120-1000
<b>Pneumatic</b>			
Viton-Viton (HV)	U.S. Bolt	147 [67]	11212-1000R
Copper-Viton (UHV)	U.S. Bolt	147 [67]	11222-1000R

\* For metric flanges, replace last 0 in model number with 4

For pneumatic valves,  
R = Reed switch, standard  
M = Microswitch, optional

**Specifications**

**HV Pressure Range:**

1 x 10<sup>-9</sup> mbar

**UHV Pressure Range:**

1 x 10<sup>-10</sup> mbar

**Helium Leak Rate: Materials:**

< 2 x 10<sup>-9</sup> mbar l/s

**Maximum Δ Pressure Before Opening:**

≤ 30 mbar

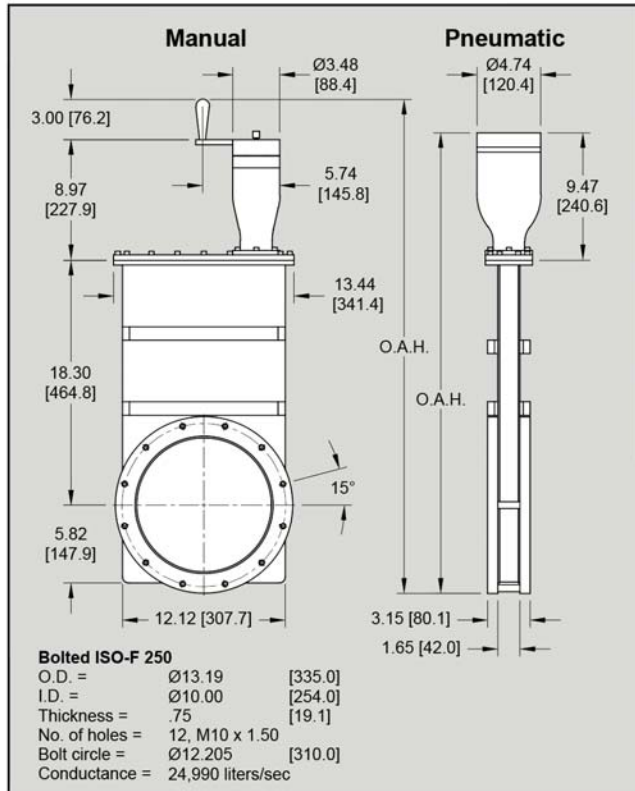
**Materials:**

- Body = 304 Stainless Steel
- Gate = 304 Stainless Steel
- Bellows = AM-350
- Actuator = 6061-T6 Aluminum

**Operating Temperature:**

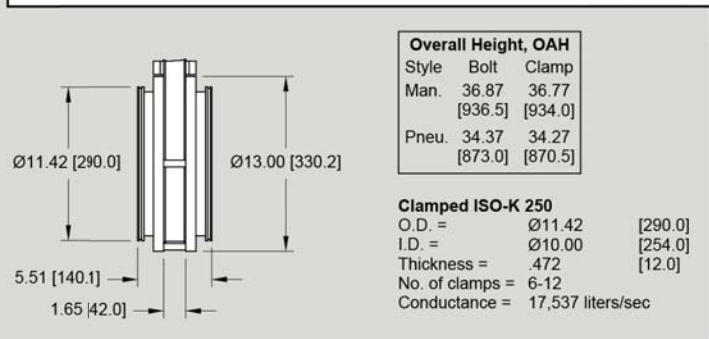
- Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*
- Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*
- Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*
- Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

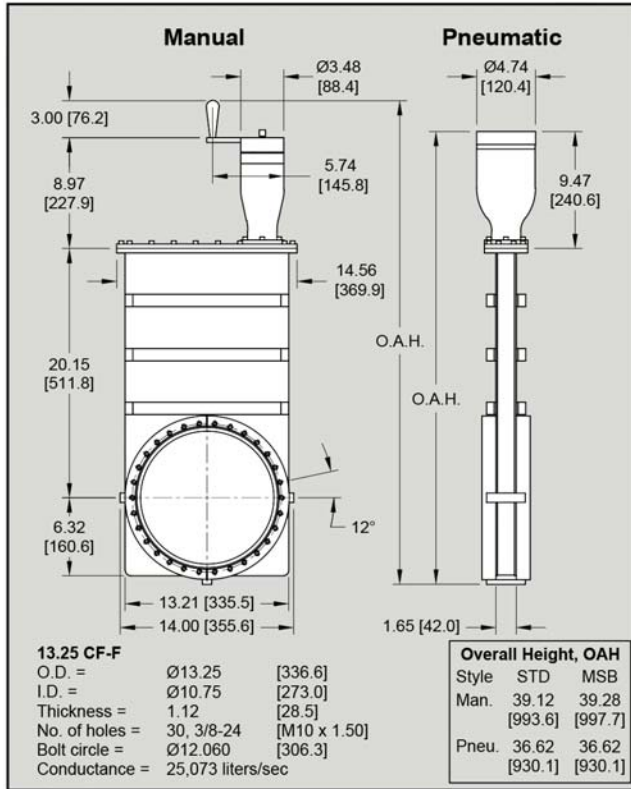
\*250°C options available on request.



ISO-250 Flanges		250-mm 10.0-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	Metric Bolt	160 [73]	11110-1003
Viton-Viton (HV)	Clamp	190 [86]	11110-1006
<b>Pneumatic</b>			
Viton-Viton (HV)	Metric Bolt	160 [73]	11212-1003R
Viton-Viton (HV)	Clamp	190 [86]	11212-1006R

\* For pneumatic valves,  
R = Reed switch, standard  
M = Microswitch, optional





CF-F 13.25 Flanges		273-mm 10.75-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	U.S. Bolt	160 [73]	11110-1070
Copper-Viton (UHV)	U.S. Bolt	160 [73]	11120-1070
<b>Pneumatic</b>			
Viton-Viton (HV)	U.S. Bolt	160 [73]	11212-1070R
Copper-Viton (UHV)	U.S. Bolt	160 [73]	11222-1070R

\* For metric flanges, replace last 0 in model number with 4

For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional

**Specifications**

**HV Pressure Range:**

1 x 10<sup>-9</sup> mbar

**UHV Pressure Range:**

1 x 10<sup>-10</sup> mbar

**Helium Leak Rate: Materials:**

< 2 x 10<sup>-9</sup> mbar l/s

**Maximum Δ Pressure Before Opening:**

≤ 30 mbar

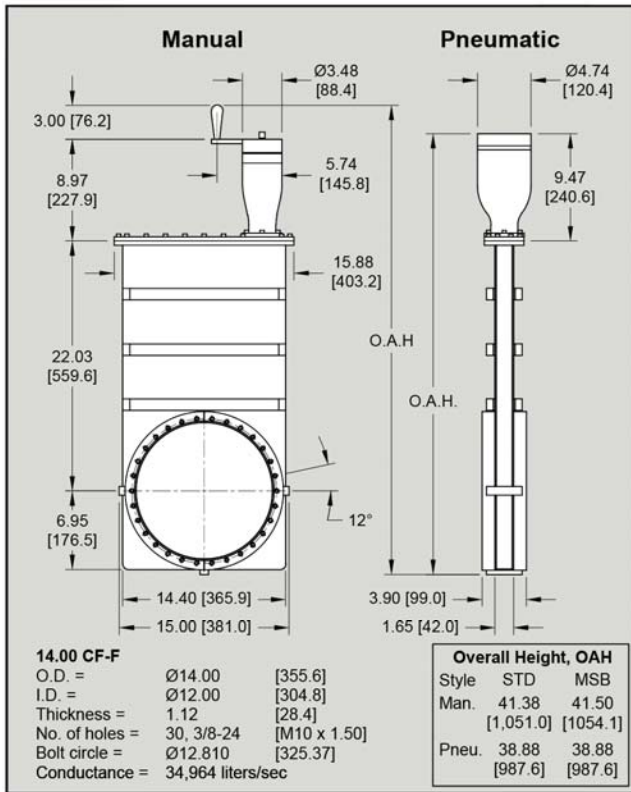
**Materials:**

- Body = 304 Stainless Steel
- Gate = 304 Stainless Steel
- Bellows = AM-350
- Actuator = 6061-T6 Aluminum

**Operating Temperature:**

- Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*
- Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*
- Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*
- Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

\*250°C options available on request.



CF-F 14.00 Flanges		300-mm 12.0-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	U.S. Bolt	170 [77]	11110-1200
Copper-Viton (UHV)	U.S. Bolt	170 [77]	11120-1200
<b>Pneumatic</b>			
Viton-Viton (HV)	U.S. Bolt	170 [77]	11212-1200R
Copper-Viton (UHV)	U.S. Bolt	170 [77]	11222-1200R

\* For metric flanges, replace last 0 in model number with 4

For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional

**Specifications**

**HV Pressure Range:**

1 x 10<sup>-9</sup> mbar

**UHV Pressure Range:**

1 x 10<sup>-10</sup> mbar

**Helium Leak Rate: Materials:**

< 2 x 10<sup>-9</sup> mbar l/s

**Maximum Δ Pressure Before Opening:**

≤ 30 mbar

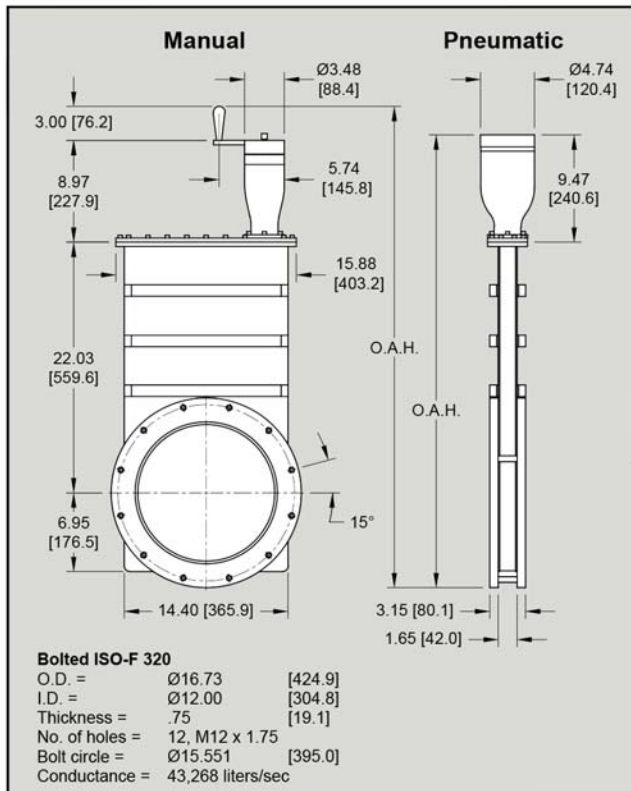
**Materials:**

- Body = 304 Stainless Steel
- Gate = 304 Stainless Steel
- Bellows = AM-350
- Actuator = 6061-T6 Aluminum

**Operating Temperature:**

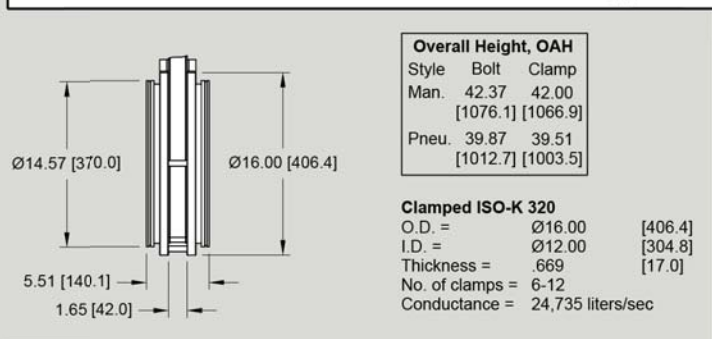
- Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*
- Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*
- Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*
- Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

\*250°C options available on request.



ISO-320 Flanges		300-mm 12.0-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	Metric Bolt	170 [77]	11110-1203
Viton-Viton (HV)	Clamp	195 [88]	11110-1206
<b>Pneumatic</b>			
Viton-Viton (HV)	Metric Bolt	170 [77]	11212-1203R
Viton-Viton (HV)	Clamp	195 [88]	11212-1206R

\* For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional



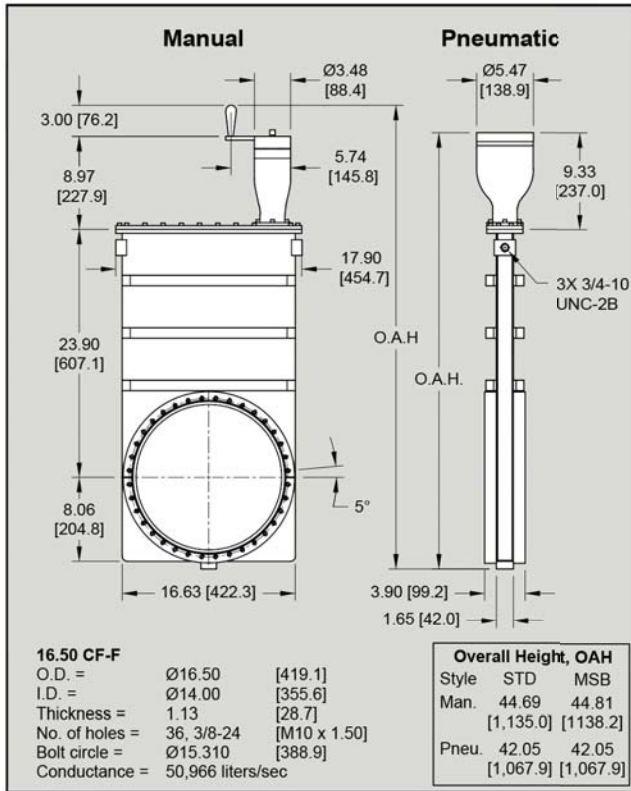


# 11000 Series Standard Cycle Gate Valves



350-mm 14.0-inch / 400-mm 16.0-inch

11000



CF-F 16.50 Flanges		350-mm 14.0-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
Viton-Viton (HV)	U.S. Bolt	315 [143]	11110-1400
Copper-Viton (UHV)	U.S. Bolt	315 [143]	11120-1400
<b>Pneumatic</b>			
Viton-Viton (HV)	U.S. Bolt	315 [143]	11212-1400R
Copper-Viton (UHV)	U.S. Bolt	315 [143]	11222-1400R

\* For metric flanges, replace last 0 in model number with 4

For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional

**Specifications**

**HV Pressure Range:**  $1 \times 10^{-9}$  mbar

**UHV Pressure Range:**  $1 \times 10^{-10}$  mbar

**Helium Leak Rate: Materials:**  $< 2 \times 10^{-9}$  mbar l/s

**Maximum Δ Pressure Before Opening:**  $\leq 30$  mbar

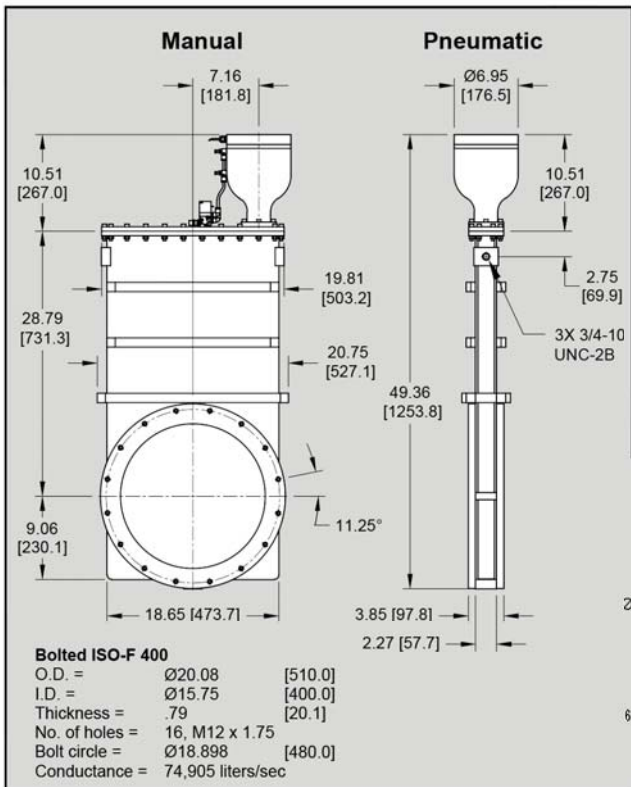
**Materials:**

- Body = 304 Stainless Steel
- Gate = 304 Stainless Steel
- Bellows = AM-350
- Actuator = 6061-T6 Aluminum

**Operating Temperature:**

- Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*
- Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*
- Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*
- Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

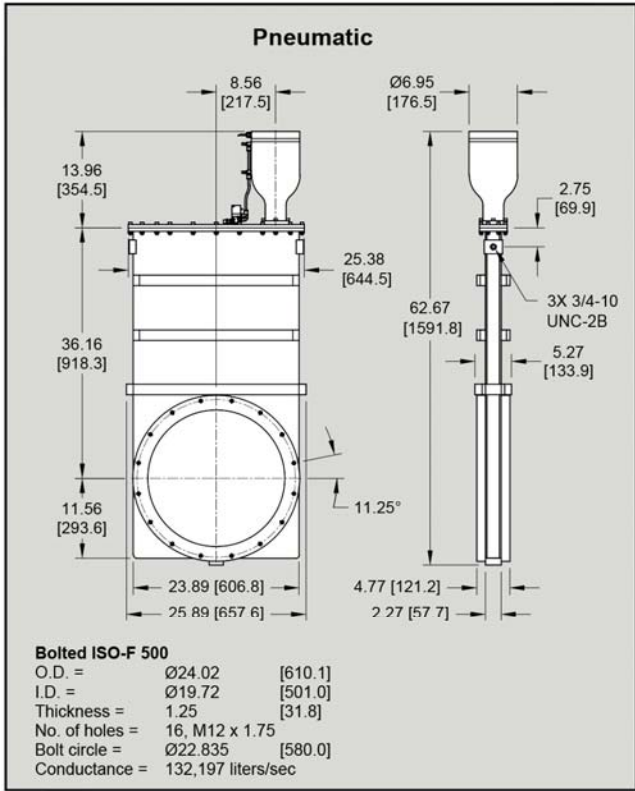
\*250°C options available on request.



ISO-400 Flanges		400-mm 16.0-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Pneumatic</b>			
Viton-Viton (HV)	Metric Bolt	415 [189]	11212-1603R
Viton-Viton (HV)	Clamp	475 [216]	11212-1606R

\* For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional





ISO-500 Flanges		500-mm 20.0-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Pneumatic</b>			
Viton-Viton (HV)	Metric Bolt	680 [309]	11212-2003R

\* For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional

**Specifications**

**HV Pressure Range:** 1 x 10<sup>-9</sup> mbar  
**UHV Pressure Range:** 1 x 10<sup>-10</sup> mbar  
**Helium Leak Rate: Materials:** < 2 x 10<sup>-9</sup> mbar l/s  
**Maximum Δ Pressure Before Opening:** ≤ 30 mbar

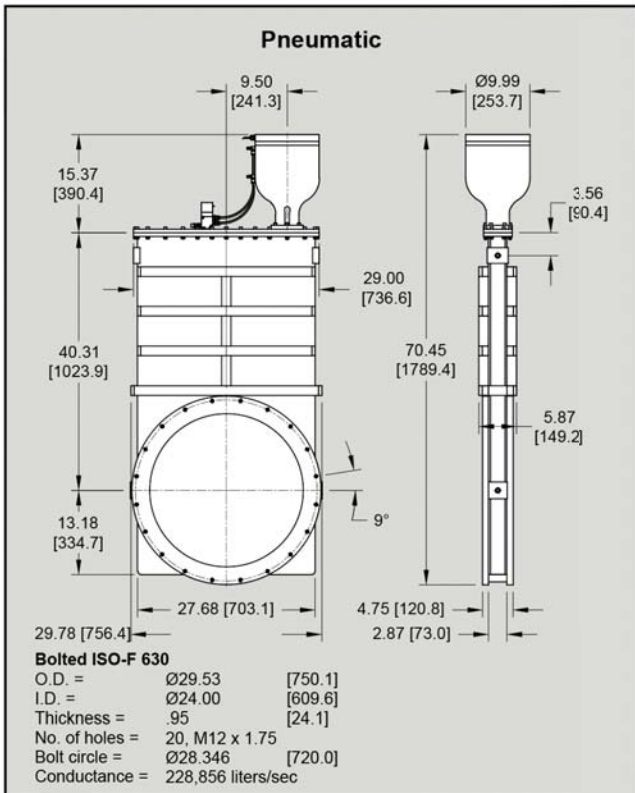
**Materials:**

Body = 304 Stainless Steel  
 Gate = 304 Stainless Steel  
 Bellows = AM-350  
 Actuator = 6061-T6 Aluminum

**Operating Temperature:**

Body, Gate Open (Viton® / Copper bonnet) = 150°C / 200°C\*  
 Body, Gate Closed (Viton® / Copper bonnet) = 150°C / 150°C\*  
 Actuator w/out solenoid (Viton® / Copper bonnet) = 60°C / 60°C\*  
 Position Indicator (Viton® / Copper bonnet) = 150°C / 150°C\*

\*250°C options available on request.



ISO-630 Flanges		600-mm 24.0-inch	
Bonnet-Gate	Flange Type	Ship Wt. lbs [Kg]	Model Number *
<b>Pneumatic</b>			
Viton-Viton (HV)	Metric Bolt	725 [330]	11212-2403R

\* For pneumatic valves,  
 R = Reed switch, standard  
 M = Microswitch, optional

### ANSI Flange Models

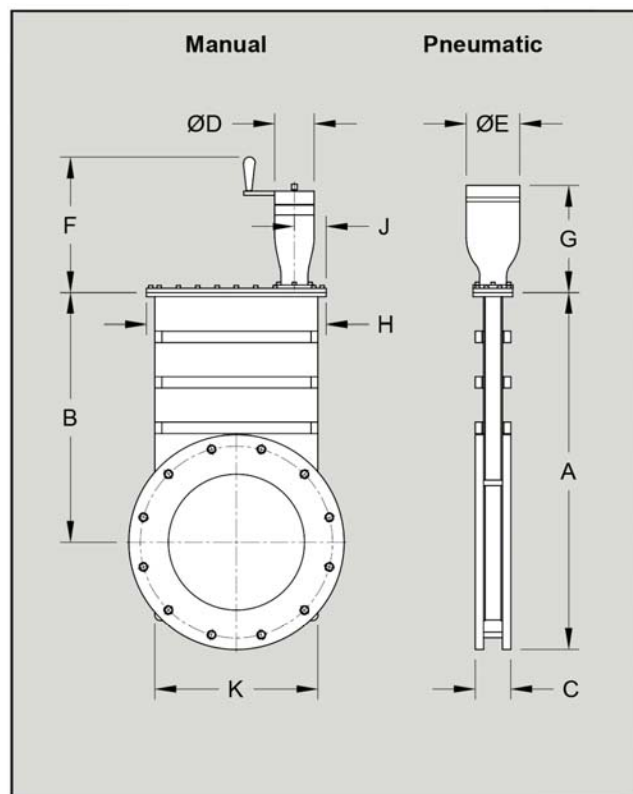
ANSI Flange Models are designed for high vacuum applications, specifically when pressure ranges approximate  $1 \times 10^{-9}$  mbar and bakeout temperatures do not exceed 200°C. The bonnet comes standard with a Viton® elastomer O-ring. These valves provide valving for cryopumps, turbomolecular pumps, ion pumps and other applications requiring clean, low outgassing valves. Pneumatic valves are supplied with a 120 VAC solenoid and a Reed switch position indicator. Standard flanges are smooth faced, non-rotatable and threaded. When O-ring grooves are required on flanges, please specify one of the following options:

- O-ring groove on gate side only
- O-ring groove on carriage side only
- O-ring grooves on both gate side and carriage side

O-ring groove I.D. is 0.250-inch larger than the valve I.D. Flange O-rings are not included with the valve, and may be purchased separately.

### JIS and Custom Flange Models

Valves requiring JIS flanges may be obtained through HVA (see page 195). Additionally, other specialty flanges for non-standard installations may be custom ordered through HVA. Contact HVA Technical Services to discuss your requirements.



### ANSI Flange Dimensions

MM	Inch	Flange Size	Conductance liter/sec air	No. Holes	Thread	B.C. mm	B.C. inch	O.D. mm	O.D. inch	I.D. mm	I.D. inch
50	2.0	2.0 ANSI	311	4	3/8-16	$\varnothing 121$	$\varnothing 4.75$	$\varnothing 152$	$\varnothing 5.97$	$\varnothing 51$	$\varnothing 2.00$
63	2.5	2.0 ANSI	615	4	3/8-16	$\varnothing 121$	$\varnothing 4.75$	$\varnothing 152$	$\varnothing 5.97$	$\varnothing 64$	$\varnothing 2.50$
75	3.0	2.0 ANSI	1,029	4	3/8-16	$\varnothing 121$	$\varnothing 4.75$	$\varnothing 152$	$\varnothing 5.97$	$\varnothing 76$	$\varnothing 3.00$
75	3.0	3.0 ANSI	1,029	4	3/8-16	$\varnothing 152$	$\varnothing 6.00$	$\varnothing 190$	$\varnothing 7.49$	$\varnothing 76$	$\varnothing 3.00$
100	4.0	4.0 ANSI	2,122	8	3/8-16	$\varnothing 190$	$\varnothing 7.50$	$\varnothing 229$	$\varnothing 8.99$	$\varnothing 102$	$\varnothing 4.00$
150	6.0	6.0 ANSI	7,023	8	3/4-10	$\varnothing 241$	$\varnothing 9.50$	$\varnothing 279$	$\varnothing 11.00$	$\varnothing 152$	$\varnothing 6.00$
200	8.0	6.0 ANSI	14,374	8	3/4-10	$\varnothing 241$	$\varnothing 9.50$	$\varnothing 279$	$\varnothing 11.00$	$\varnothing 203$	$\varnothing 8.00$
200	8.0	8.0 ANSI	14,374	8	3/4-10	$\varnothing 298$	$\varnothing 11.75$	$\varnothing 343$	$\varnothing 13.50$	$\varnothing 203$	$\varnothing 8.00$
250	10.0	10.0 ANSI	24,990	12	3/4-10	$\varnothing 362$	$\varnothing 14.25$	$\varnothing 406$	$\varnothing 16.00$	$\varnothing 254$	$\varnothing 10.00$
273	10.75	10.0 ANSI	31,028	12	3/4-10	$\varnothing 362$	$\varnothing 14.25$	$\varnothing 406$	$\varnothing 16.00$	$\varnothing 273$	$\varnothing 10.75$
300	12.0	10.0 ANSI	43,268	12	3/4-10	$\varnothing 362$	$\varnothing 14.25$	$\varnothing 406$	$\varnothing 16.00$	$\varnothing 305$	$\varnothing 12.00$
300	12.0	12.0 ANSI	43,268	12	3/4-10	$\varnothing 432$	$\varnothing 17.00$	$\varnothing 483$	$\varnothing 19.00$	$\varnothing 305$	$\varnothing 12.00$
350	14.0	14.0 ANSI	68,804	12	3/4-10	$\varnothing 476$	$\varnothing 18.75$	$\varnothing 533$	$\varnothing 21.00$	$\varnothing 356$	$\varnothing 14.00$
400	16.0	14.0 ANSI	74,905	12	3/4-10	$\varnothing 476$	$\varnothing 18.75$	$\varnothing 533$	$\varnothing 21.00$	$\varnothing 406$	$\varnothing 16.00$
400	16.0	16.0 ANSI	74,905	16	3/4-10	$\varnothing 540$	$\varnothing 21.25$	$\varnothing 597$	$\varnothing 23.50$	$\varnothing 406$	$\varnothing 16.00$
450	18.0	16.0 ANSI	106,827	16	3/4-10	$\varnothing 540$	$\varnothing 21.25$	$\varnothing 597$	$\varnothing 23.50$	$\varnothing 457$	$\varnothing 18.00$
450	18.0	18.0 ANSI	106,827	16	3/4-10	$\varnothing 578$	$\varnothing 22.75$	$\varnothing 635$	$\varnothing 25.00$	$\varnothing 457$	$\varnothing 18.00$
500	20.0	20.0 ANSI	130,030	20	1-8	$\varnothing 635$	$\varnothing 25.00$	$\varnothing 698$	$\varnothing 27.50$	$\varnothing 508$	$\varnothing 20.00$
525	21.0	20.0 ANSI	150,188	20	1-8	$\varnothing 635$	$\varnothing 25.00$	$\varnothing 698$	$\varnothing 27.50$	$\varnothing 533$	$\varnothing 21.00$
600	24.0	24.0 ANSI	227,000	20	1-8	$\varnothing 749$	$\varnothing 29.50$	$\varnothing 813$	$\varnothing 32.00$	$\varnothing 610$	$\varnothing 24.00$

\*32" ID (DN800) size available.



11000

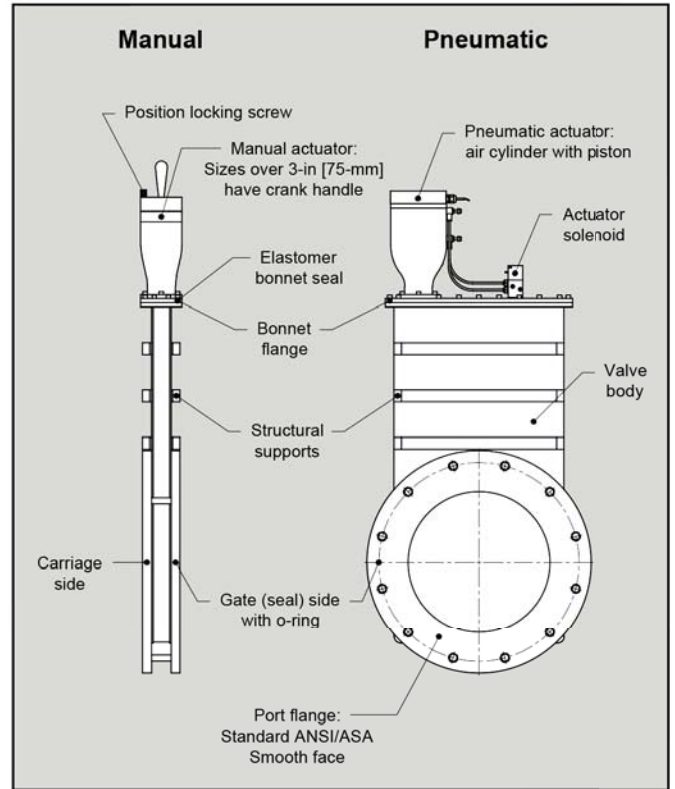
Nom. I.D.	A	B	C	D	E	F	G	H	J	K
50 mm	180	105	52	Ø50	Ø50	108	134	97	31	76
2.0 in	7.10	4.12	2.03	Ø1.97	Ø1.97	4.27	5.29	3.81	1.23	3.00
63 mm	198	122	52	Ø50	Ø62	108	134	111	31	90
2.5 in	7.80	4.81	2.03	Ø1.97	Ø2.45	4.27	5.29	4.37	1.23	3.56
75 mm	222	147	52	Ø50	Ø62	108	134	125	31	110
3.0 in	8.76	5.77	2.03	Ø1.97	Ø2.45	4.27	5.29	4.94	1.23	4.32
75 mm	242	147	52	Ø50	Ø62	108	134	125	31	110
3.0 in	9.52	5.77	2.03	Ø1.97	Ø2.45	4.27	5.29	4.94	1.23	4.32
100 mm	321	207	61	Ø75	Ø75	200	177	178	55	145
4.0 in	12.63	8.13	2.41	Ø2.97	Ø2.97	7.87	6.96	7.00	2.17	5.71
150 mm	410	270	61	Ø75	Ø75	200	177	222	52	193
6.0 in	16.14	10.64	2.41	Ø2.97	Ø2.97	7.87	6.96	8.75	2.05	7.61
200 mm	494	354	70	Ø75	Ø75	200	177	286	57	255
8.0 in	19.43	13.93	2.76	Ø2.97	Ø2.97	7.87	6.96	11.25	2.24	10.08
200 mm	525	354	71	Ø75	Ø75	200	177	286	57	255
8.0 in	20.68	13.93	2.78	Ø2.97	Ø2.97	7.87	6.96	11.25	2.24	10.08
250 mm	668	465	80	Ø88	Ø120	304	241	341	71	308
10.0 in	26.30	18.30	3.15	Ø3.48	Ø4.74	11.97	9.47	13.44	2.81	12.12
273 mm	715	512	80	Ø88	Ø120	304	241	370	71	336
10.75 in	28.15	20.15	3.15	Ø3.48	Ø4.74	11.97	9.47	14.56	2.81	13.21
300 mm	763	560	80	Ø88	Ø120	304	241	403	71	363
12.0 in	30.03	22.03	3.15	Ø3.48	Ø4.74	11.97	9.47	15.88	2.81	14.40
300 mm	801	560	80	Ø88	Ø120	304	241	403	71	363
12.0 in	31.53	22.03	3.15	Ø3.48	Ø4.74	11.97	9.47	15.88	2.81	14.40
350 mm	874	607	93	Ø88	Ø139	304	237	455	71	419
14.0 in	34.40	23.90	3.65	Ø3.48	Ø5.47	11.97	9.33	17.90	2.81	16.63
400 mm	998	731	108	-	Ø177	-	267	503	70	474
16.0 in	39.29	28.79	4.27	-	Ø6.95	-	10.51	19.81	2.75	18.65
400 mm	1030	731	108	-	Ø177	-	267	503	70	474
16.0 in	40.54	28.79	4.27	-	Ø6.95	-	10.51	19.81	2.75	18.65
450 mm	1105	806	108	-	Ø177	-	355	559	105	524
18.0 in	43.49	31.74	4.27	-	Ø6.95	-	13.96	22.00	4.13	20.62
450 mm	1124	806	108	-	Ø177	-	355	559	105	524
18.0 in	44.24	31.74	4.27	-	Ø6.95	-	13.96	22.00	4.13	20.62
500 mm	1268	918	121	-	Ø177	-	355	645	105	604
20.0 in	49.91	36.16	4.77	-	Ø6.95	-	13.96	25.38	4.13	23.89
525 mm	1268	918	121	-	Ø177	-	355	645	105	604
21.0 in	49.91	36.16	4.77	-	Ø6.95	-	13.96	25.38	4.13	23.89
600 mm	1430	1024	136	-	Ø254	-	390	737	127	703
24.0 in	56.31	40.31	5.37	-	Ø9.99	-	15.37	29.00	5.00	27.68

\*32" ID (DN800) size available.



ANSI Flanges		Viton Bonnet and Gate	
Size inch [mm]	Flange Size	Ship Wt. lbs [Kg]	Model Number *
<b>Manual</b>			
2.0 [50]	2.0 ANSI	13 [6]	11110-0201
2.5 [63]	2.0 ANSI	18 [8]	11110-0251
3.0 [75]	2.0 ANSI	22 [10]	11110-0301
3.0 [75]	3.0 ANSI	22 [10]	11110-0302
4.0 [100]	4.0 ANSI	33 [15]	11110-0401
6.0 [150]	6.0 ANSI	50 [23]	11110-0601
8.0 [200]	6.0 ANSI	75 [34]	11110-0801
8.0 [200]	8.0 ANSI	75 [34]	11110-0802
10.0 [250]	10.0 ANSI	160 [73]	11110-1001
10.75 [273]	10.0 ANSI	160 [73]	11110-1071
12.0 [300]	10.0 ANSI	170 [77]	11110-1201
12.0 [300]	12.0 ANSI	180 [82]	11110-1202
14.0 [350]	14.0 ANSI	315 [143]	11110-1401
<b>Pneumatic</b>			
2.0 [50]	2.0 ANSI	13 [6]	11212-02C1R
2.5 [63]	2.0 ANSI	18 [8]	11212-0251R
3.0 [75]	2.0 ANSI	22 [10]	11212-03C1R
3.0 [75]	3.0 ANSI	22 [10]	11212-03C2R
4.0 [100]	4.0 ANSI	33 [15]	11212-04C1R
6.0 [150]	6.0 ANSI	50 [23]	11212-06C1R
8.0 [200]	6.0 ANSI	75 [34]	11212-08C1R
8.0 [200]	8.0 ANSI	75 [34]	11212-08C2R
10.0 [250]	10.0 ANSI	160 [73]	11212-10C1R
10.75 [273]	10.0 ANSI	160 [73]	11212-1071R
12.0 [300]	10.0 ANSI	170 [77]	11212-12C1R
12.0 [300]	12.0 ANSI	180 [82]	11212-12C2R
14.0 [350]	14.0 ANSI	315 [143]	11212-14C1R
16.0 [400]	14.0 ANSI	415 [189]	11212-16C1R
16.0 [400]	16.0 ANSI	435 [198]	11212-16C2R
18.0 [450]	16.0 ANSI	520 [234]	11212-18C1R
18.0 [450]	18.0 ANSI	530 [241]	11212-18C2R
20.0 [500]	20.0 ANSI	680 [309]	11212-20C1R
21.0 [525]	20.0 ANSI	680 [309]	11212-21C1R
24.0 [600]	24.0 ANSI	725 [330]	11212-24C1R

\* For pneumatic valves,  
R = Reed switch, standard  
M = Microswitch, optional



**Specifications**

**HV Pressure Range:** 1 x 10<sup>-9</sup> mbar  
**UHV Pressure Range:** 1 x 10<sup>-10</sup> mbar  
**Helium Leak Rate: Materials:** < 2 x 10<sup>-9</sup> mbar l/s  
**Maximum Δ Pressure Before Opening:** ≤ 30 mbar

**Materials:**  
 Body = 304 Stainless Steel  
 Gate = 304 Stainless Steel  
 Bellows = AM-350  
 Actuator = 6061-T6 Aluminum

**Operating Temperature:**  
 Body, Gate Open (Viton / Copper bonnet) = 150°C / 200°C\*  
 Body, Gate Closed (Viton / Copper bonnet) = 150°C / 150°C\*  
 Actuator w/out solenoid (Viton / Copper bonnet) = 60°C / 60°C\*  
 Position Indicator (Viton / Copper bonnet) = 150°C / 150°C\*

\*250°C options available on request.





伯东企业（上海）有限公司  
**HAKUTO ENTERPRISES (SHANGHAI) LTD.**  
 TEL: (86) 21-5046 3511 FAX: (86) 21-5046 1490

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伯东企业（上海）有限公司  
**HAKUTO ENTERPRISES (SHANGHAI) LTD.**  
TEL: (86) 21-5046 3511      FAX: (86) 21-5046 1490

**伯东企业（上海）有限公司 销售及售后服务中心**

上海市外高桥保税区希雅路33号17#3楼B座

电 话：+86-21-5046-3511

传 真：+86-21-5046-1490

邮箱：ec@hakuto-vacuum.cn

官 网：<http://www.hakuto-vacuum.cn>

24 h售后维修专线：1381-880-1372

**伯东企业（上海）有限公司 北京办事处 销售中心**

北京丰台区芳群园四区22号楼金城中心705室

电 话：+86- 010-8768-4988

传 真：+86-21-5046-1490

邮箱：ec@hakuto-vacuum.cn

官 网：<http://www.hakuto-vacuum.cn>

**伯东企业（上海）有限公司 深圳办事处 销售中心**

深圳市罗湖区宝安南路1036号鼎丰大厦501

电 话：+86- 0755-2547-3988. 643

传 真：+86-21-5046-1490

邮箱：ec@hakuto-vacuum.cn

官 网：<http://www.hakuto-vacuum.cn>

**伯东国际通商股份有限公司 销售及售后服务中心**

台北市中山区八德路二段308号6楼

电 话：+886-2-8772-8910

传 真：+886-2-8772-8918

邮箱：ec@hakuto-vacuum.cn

官 网：<http://www.hakuto-vacuum.com.tw>

新竹市埔顶路25号8楼之一

电 话：+886-3-5679508

传 真：+886-3-5670049

邮箱：ec@hakuto-vacuum.cn

官 网：<http://www.hakuto-vacuum.com.tw>