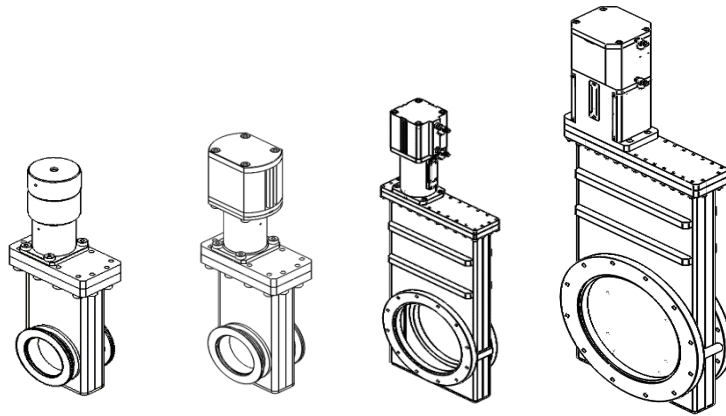


INSTRUCTION MANUAL

HV Series
GATE VALVE



UHV Series
GATE VALVE

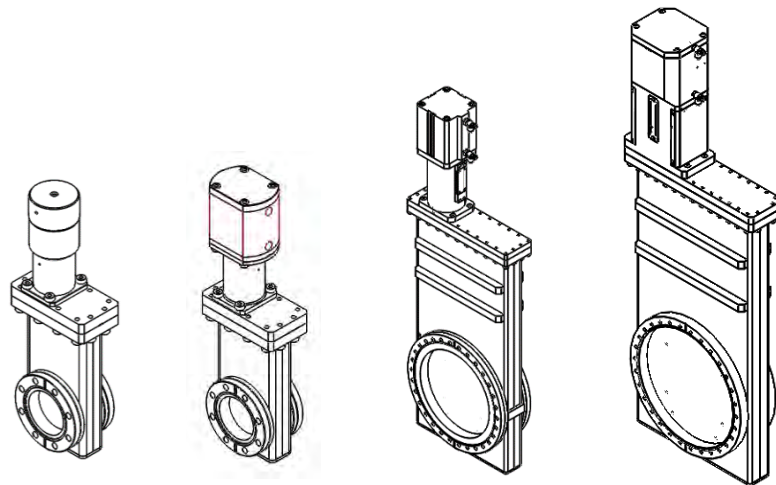


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Preface

Be sure to fully read and understand this manual before you start any other action.

Health and Safety



Indicates a potentially hazardous situation which, if not avoided, may result in serious injury.



Indicates an instruction which should be followed, if not, may cause damage to the equipment.

Introduction

UHV Series valves are toggle action, linear travel gate valves. The gate carriage moves in the valve body on a set of wheels, moved back and forth by a manual or pneumatically actuated valve stem which passes through a metal bellows.

To close the valve, the carriage moves forward on wheels until it reaches the end of the valve case. When the carriage stops, the toggle linkage continues to travel and extend. The gate does not move forward, only upward toward the port seal surface. There is no abrasion or damage to the O-ring. The gate moves up to the port into its sealing position. The O-ring is compressed, making a leak-tight seal. The toggle linkage continues to move forward until the toggle knee passes center and locks, providing positive closure protection in the event control power, or air pressure, is lost.

Specifications

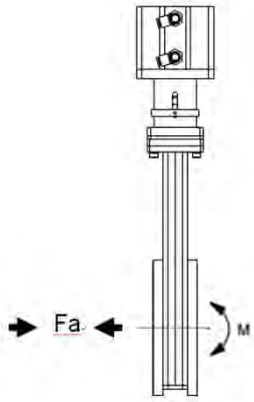
1. Material:	Body	304 Stainless Steel.		
	Carriage	304 Stainless Steel.		
	Gate	304 Stainless Steel.		
	Bellows	AM350		
2. Life Cycle:	1.5" , 2"	100,000 cycles		
	10" , 12"	50,000 cycles		
3. Helium leak rates at 1 atm differential:	5×10^{-10} mbar-L/s for gasket bonnet seal			
4. Bakeable Temperature (Valve body)	Open	200°C gasket bonnet seal		
	Closed	150°C gasket bonnet seal		
5. Pressure Range:	$10^{-11} \sim 1,000$ mbar			
6. Maximum ΔP :	27 mbar before opening			
7. Standard Seal:	Gate	Viton O-ring		
	Bonnet	OFHC gasket		
8. Size:	1.5" , 2" , 10" , 12"			
9. Actuator:	Electro-Pneumatic or Manual			
10. Surface Treatment:	Scotch Polished			
11. Conductance (molecular flow) (L/s)	CF-35 (1.5")	CF-35 (2")	CF-250 (10")	CF-300 (12")
	140	256	17,800	30,480
12. Options:	<ul style="list-style-type: none"> a. Position indicator b. Pneumatic control solenoid valve c. Roughing port d. Other material Gate O-ring seal 			

UHV Gate Valve

HV Gate valve

1. Material :	Body	304 Stainless Steel		
	Carriage	304 Stainless Steel		
	Gate	304 Stainless Steel		
	Bellows	AM350		
2. Life Cycle :	1.5" , 2"	200,000 cycles		
	10" , 12"	50,000 cycles		
3. Helium leak rates at 1,000 mbar differential :	5×10^{-9} mbar-L/s for O-ring bonnet seal			
4. Bakeable Temperature :	Open	150°C Viton bonnet seal		
	Closed	150°C Viton bonnet seal		
5. Pressure Range :	10^{-11} ~ 1,000 mbar			
6. Maximum ΔP :	27 mbar before opening			
7. Standard Seal :	Gate	Viton O-ring		
	Bonnet	Viton O-ring		
8. Size :	1.5" , 2" , 10" , 12"			
9. Actuator :	Electro-Pneumatic or Manual			
10. Surface Treatment :	Scotch Polished			
11. Conductance (molecular flow) (L/s)	KF-40(1.5")	KF-50(2")	ISO-250(10")	ISO-320(12")
	132	256	19,800	33,000
12. Options:	<ul style="list-style-type: none"> a. Position indicator b. Pneumatic control solenoid valve c. Roughing port d. Other material Gate O-ring seal 			

Admissible Forces

Flange Size	Axial tensile or compressive force (Fa)	Bending Moment (M)	
(mm)	(Kg)	(Kg-m)	
40(1.5")	50	3	
50 (2")	50	3	
250(10")	340	20	
320(12")	400	30	

Installation

Unpacking

Unpack the gate valve from the shipping box and inspect any obvious damage. If damage exists, please contact The Kurt J Lesker Company.



Check that the gate surface, O-ring grooves, and gasket grooves are clean and that no object has entered the gate valve before starting installation.

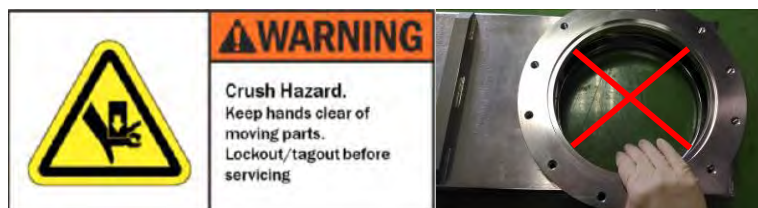
Mounting Orientation

The seal plate side of the valve should be faced the vacuum side.



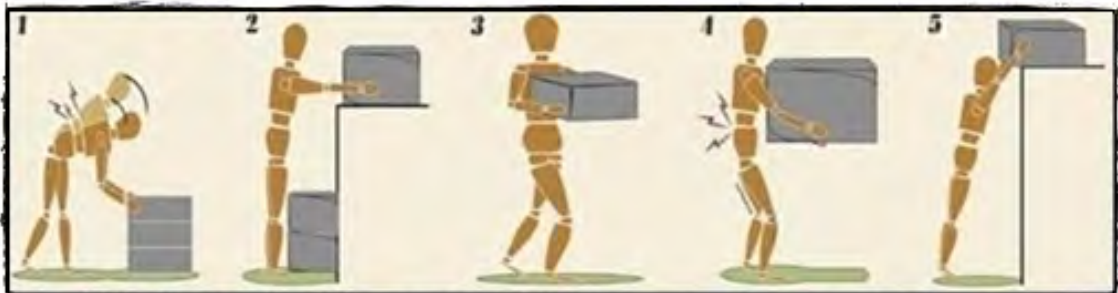
- Do not open the valve when the differential pressure in either side of the valve is more than 20 Torr (27 mbar).
- Incorrect handling of compressed air can cause physical injury. Adhere to the relevant regulations and take the necessary precautions when handling compressed air.
 - The connection to the compressed air supply may only be established if
 - The compressed air line is not pressurized.
 - The product is installed in a vacuum system or
 - The moving parts are protected to avoid accidental contact.
- Incorrect voltage supply can cause permanent damage the valve.
- Compressed air isolation when in maintenance/trouble shooting.

Keep hands out of the Gate when air is supplied.



Safe lifting and handling

Please follow the relevant safety guidelines when handling the product. Below are some examples of incorrect lifting techniques.



- (1) Bending over
- (2) Torsion body handling
- (3) Handling heavy objects
- (4) Excessive stretching arms handling
- (5) Excessive stretching upward handling

Advice for maintenance staff

- (1) For two handed push/pull activities the floor to hand height should be between 97 cm and 112cm
- (2) Consideration should be given to the standing surface to minimize the risk of slips and falls
- (3) Lifting and handling tasks performed in a stooping position should be avoided. Stooping occurs when the vertical material handling height is less than 84 cm, or the horizontal reach distance is greater than 46 cm in front of body

Air and Electrical Connections

Air pressures: 4 to 7 kg/cm² (55~100psi).

Air tubing : 6mm

For pneumatic gate valve

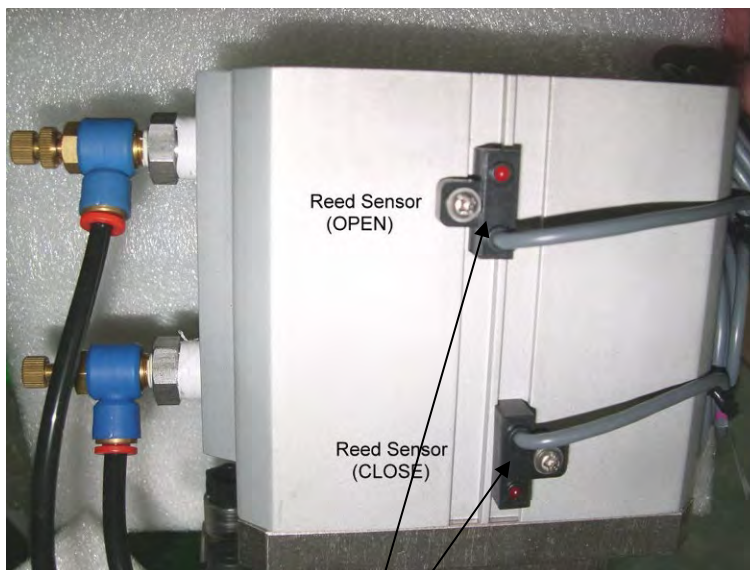
Electrical : DC/AC 5~220V



Keep hands out of the Gate when air is supplied.

Position Indicators (Pneumatic Gate Valves)

A selection of three position indicators is offered by The Kurt J Lesker Company to fill a range of mechanical, electronic and economic requirements. Signals from the switches can be employed to activate a variety of external devices such as indicator lights, alarms or other instruments. A valve can be wired so that its accidental opening would affect the shutdown of an entire system for its protection. These position indicators are very useful in automatic process control applications. Signals from the opening or closing of a valve can be employed to trigger complex procedures in computer controlled high vacuum systems.



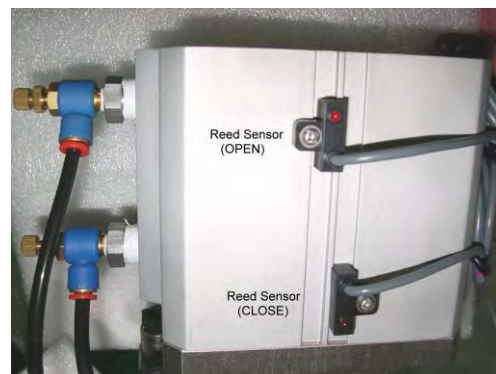
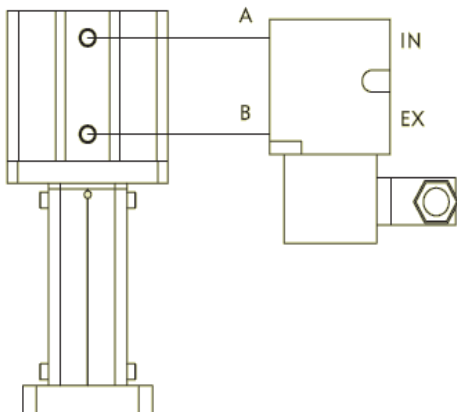
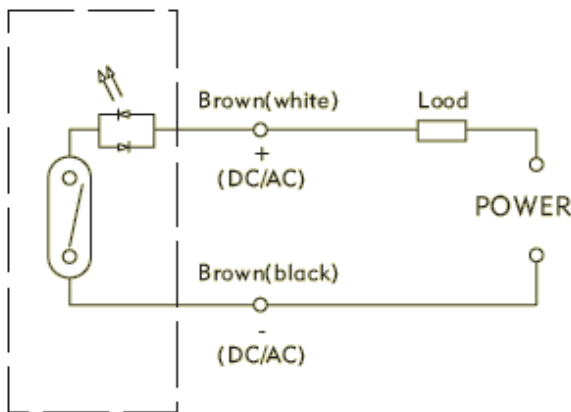
Position Indicator

External Position Indicator (Pneumatic Gate Valves)

This option employs two reed sensors or Limit switch, which are positioned in-line with a vertical stem extension of the pneumatic actuator piston. These positions correspond to the closed and open positions of the valve gate.

10 " GATE VALVE

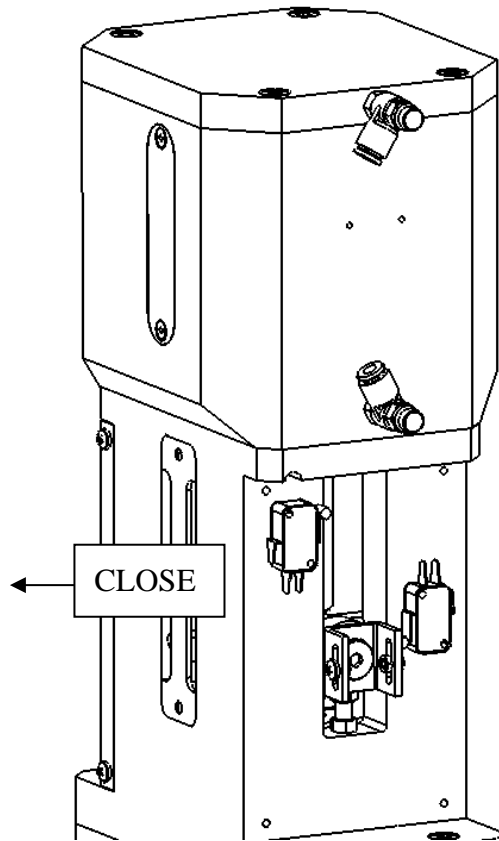
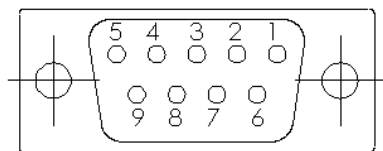
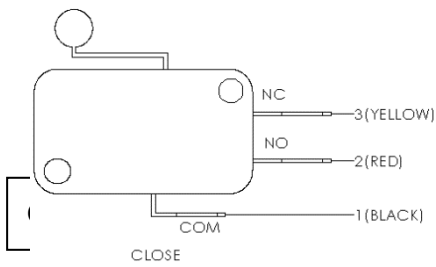
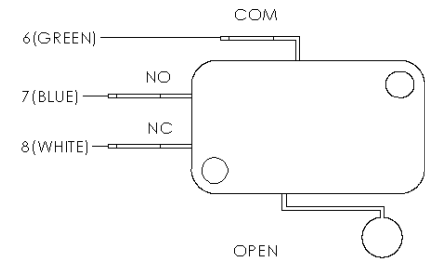
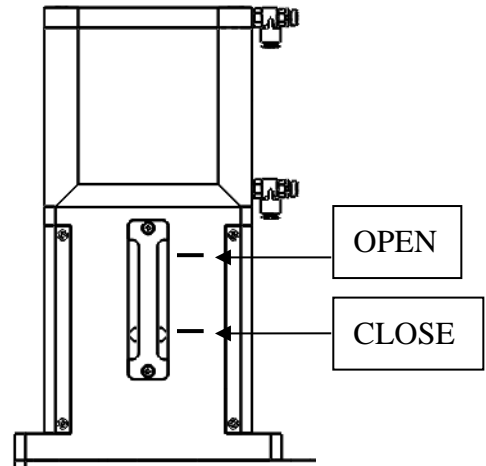
Reed sensor



12" GATE VALVE

Pin definition

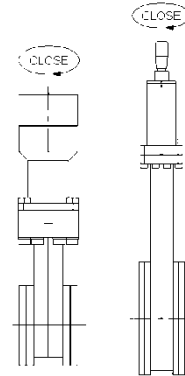
- 1:COM(Close)
- 2:N.O(Close)
- 3:N.C(Close)
- 4:Empty
- 5:Empty
- 6:COM(Open)
- 7:N.O(Open)
- 8:N.C(Open)
- 9:Empty



Operation

Manual Gate Valves

The gate carriage in the valve body is moved back and forth by means of a hand wheel. Turn the handle clockwise for closing and counterclockwise for opening. The handle is designed to enable quick operation of the gate plate moving forward to seal & lock position. The operator turns the handle to move the gate plate. While gate plate is moving, the torque of turning is smaller than 4 kg-cm. when the gate is approaching the lock position, the operator should hold the knurled wheel under the handle and turn the wheel only half a turn then the gate assembly can reach the lock position.



CAUTION

Do not use any tool to turn the handle.

Pneumatic Gate Valves



WARNING

Keep hands out of the Gate when air is supplied. The valve might suddenly close when the electrical power lose*.

The pneumatic gate valve is opened and closed by air. When electrical power is applied to the solenoid valve (option), air goes down position to the pneumatic actuator and the gate is opened. When electrical power is removed, air goes up position to the pneumatic actuator and the gate is closed. If the valve has been closed, it remains closed when the power loses or air fails.

*normal close or normal open is depended on what user set up the solenoid valve (option).

Troubleshooting

Valve does not close/open

Check power is available

Check air is available

Check solenoid valve (option) is performing

Leak at gate

Clean O-ring, O-ring groove, and the gate.

Check air pressure is over 4 kg/cm².

Leak at body

Clean the gate surface, O-rings, O-ring / gasket grooves and flanges.

Tighten flanges evenly.

Replace O-rings, gasket or bonnet seal.

Order Information

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.

