

User Manual

Pneumatic Aluminum Gate Valves

AGV Series

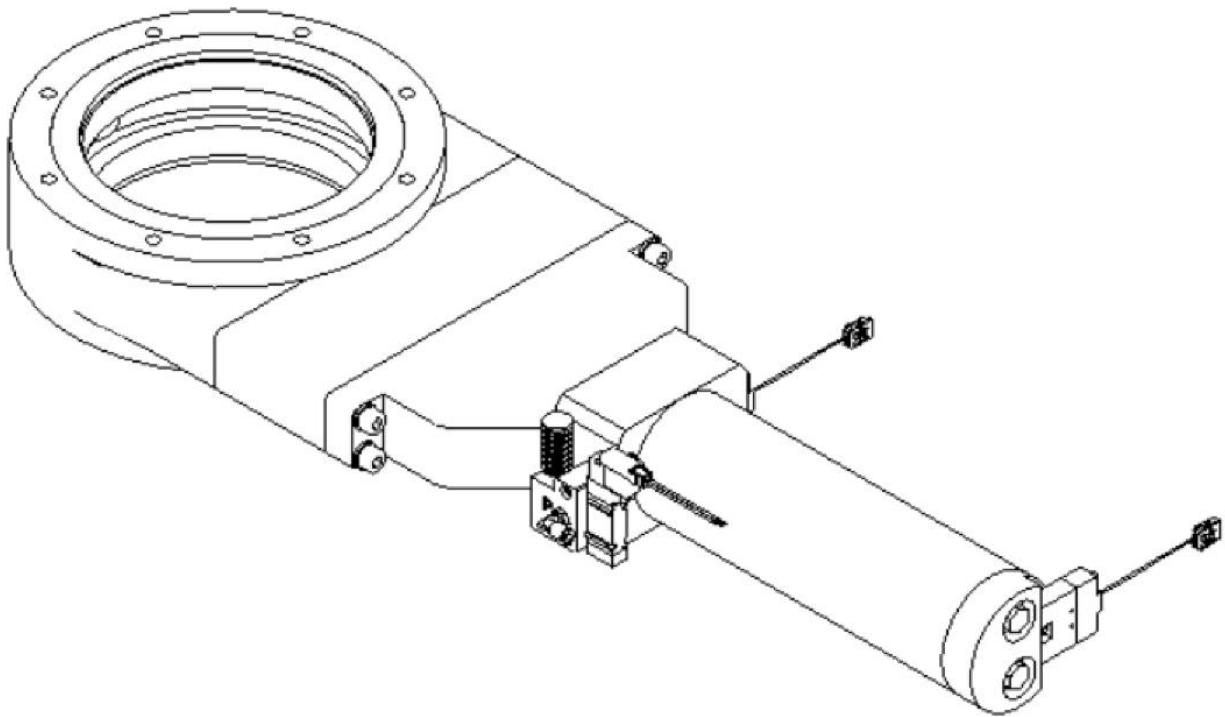


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Thank you!

Thank you choosing Kurt J. Lesker for your vacuum valve needs. We strive to be your partners in all your vacuum projects. This manual contains everything that you should need to know to operate and maintain your AGV Series gate valve. If there is anything that you need assistance with that you cannot find in the manual, please reach out to us for further assistance.

Products Covered in Manual

AGV0150PVQF

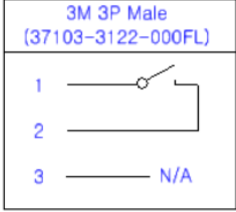


AGV0250PVIF

AGV0400PVIF

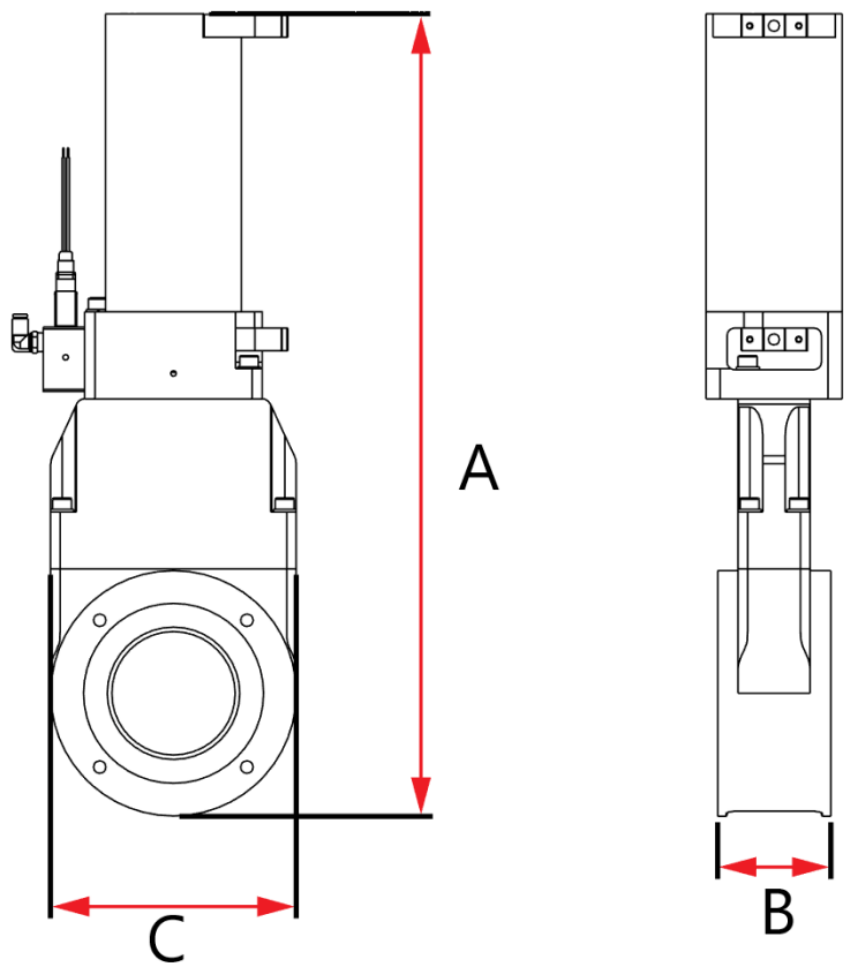
AGV0600PVIF

Specifications

1	Pressure Range	7.50x10 ⁻⁸ Torr (1.00x10 ⁻⁵ Pa)	
2	Differential Pressure on Gate	Open Direction	1200 Torr (0.16 Mpa)
		Closed Direction	1200 Torr (0.16 Mpa)
3	Differential Pressure at opening	22.50 Torr (0.003 MPa)	
4	Helium Leak Rate	External	7.52x10 ⁻¹⁰ Torr*I/s (1.00x10 ⁻¹⁰ Pa*m ³ /s)
		Internal	7.52x10 ⁻¹⁰ Torr*I/s (1.00x10 ⁻¹⁰ Pa*m ³ /s)
5	Feedthrough	O-Ring Shaft Seal	
6	Actuator	Pneumatic Double Acting	
7	Air Connection	Solenoid Valve OD 4mm	
8	Air Pressure	66-86psi (0.45-0.60 MPa)	
9	Open/Close Time (switch to switch)	Open	< 2 sec
		Close	< 2 sec
10	Mounting Position	Any	
11	Life Cycles	Mechanism	200,000
		O-Ring Seal	200,000
		Lubrication	200,000
12	Temperature	Gate (seat)	248°F (120°C)
		Actuator	140°F (60°C)
13	Lubrication	PFPE Grease	
14	Material	Housing	6061 Aluminum
		Gate	304 Stainless Steel
		Bonnet	6061 Aluminum
		Shaft	304 Stainless Steel

		Gate Seal Bonnet Seal	FKM FKM
15	Surface Treatment	Housing Gate Bonnet Shaft Actuator	Anodized (white) Buffed Anodized (white) Bare Anodizing (white)
16	Electrical Connections	Sensor	Type: Micro switch Quantity: 2 Mfr: SAIA Model: XCG3 Max. Output Current: 3A
		Connector	3M 3P Male (37103-3122-000FL)
		Pin Assignment	<p>Electrical Connection</p>  <p>3M 3P Male (37103-3122-000FL)</p> <p>1 ———— </p> <p>2 ———— </p> <p>3 ———— N/A</p>
		Solenoid	Mfr: SMC Model: SY3140-5MZ Voltage: 24VDC

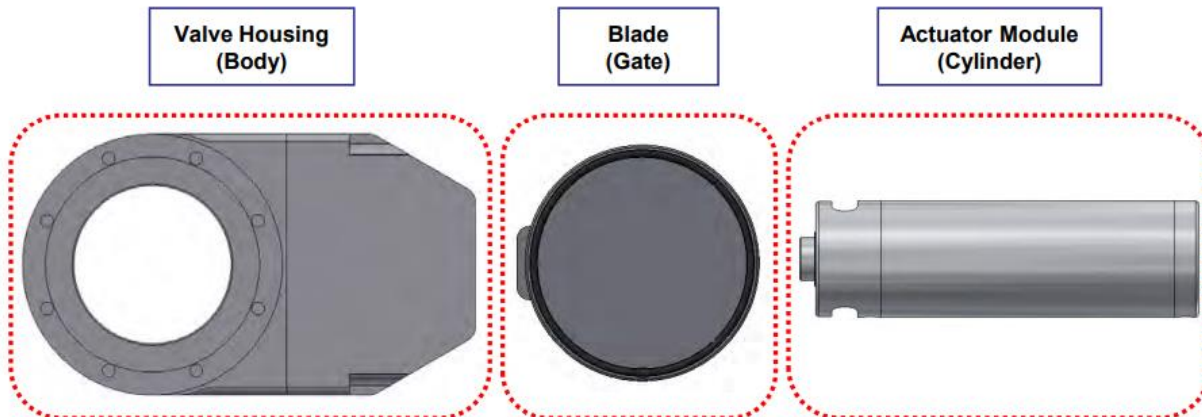
Dimensions



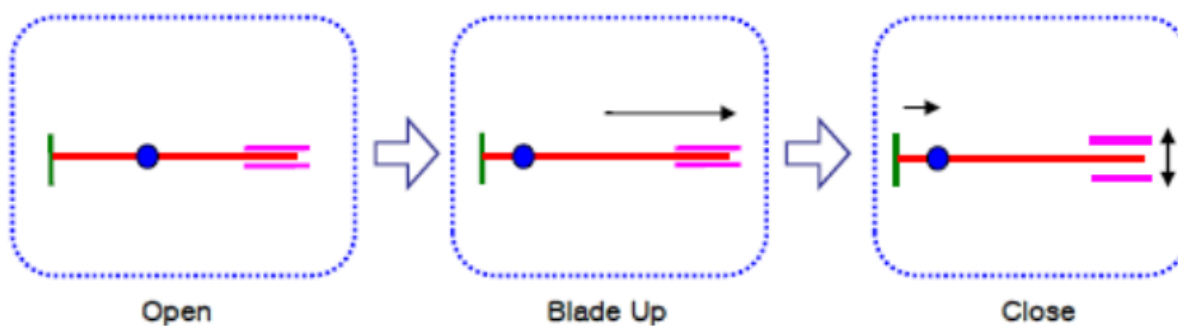
**Representative Image*

Part Number	Flange	Thread	Dim A in (mm)	Dim B in (mm)	Dim C in (mm)	Weight lb (kg)
AGV0150PVQF	KF40	N/A	10.19 (258.9)	2.01 (51.0)	2.95 (75.0)	3.31 (1.50)
AGV0250PVIF	ISO63-F	M8 x 1.25	16.73 (425.0)	2.36 (60.0)	5.12 (130.0)	11.0 (5.00)
AGV0400PVIF	ISO100-F	M8 x 1.25	20.73 (526.5)	2.36 (60.0)	6.50 (165.0)	15.4 (7.00)
AGV0600PVIF	ISO160-F	M10 x 1.5	27.17 (690.0)	2.76 (70.0)	8.86 (225.0)	24.3 (11.0)

Part Names



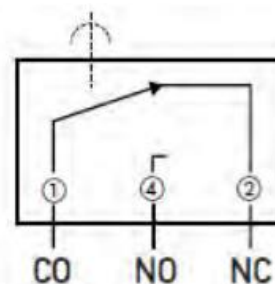
Open/Close Sequence

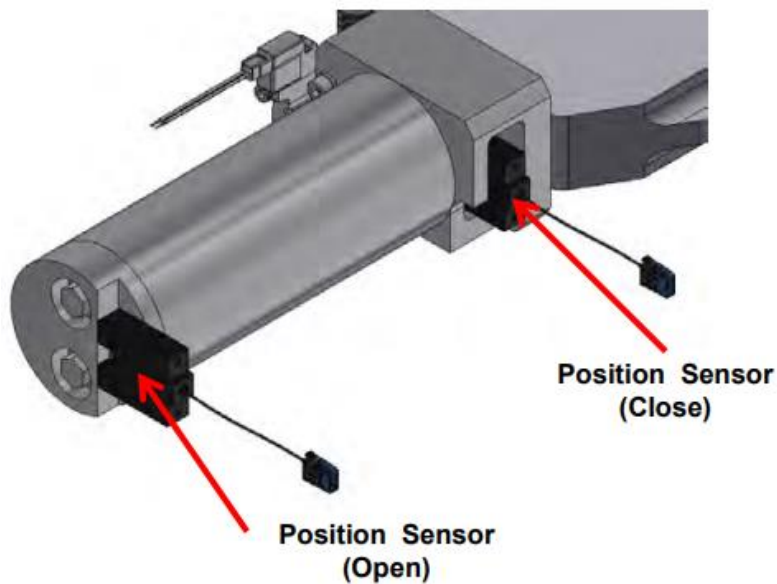


Sensor Connection

Microswitch Specification	
Manufacturer	SAIA
Model	XCG3-J1Z1
Voltage Range	250VAC
Output Current	3A
Connector	3M 3P Male

Circuit Diagram

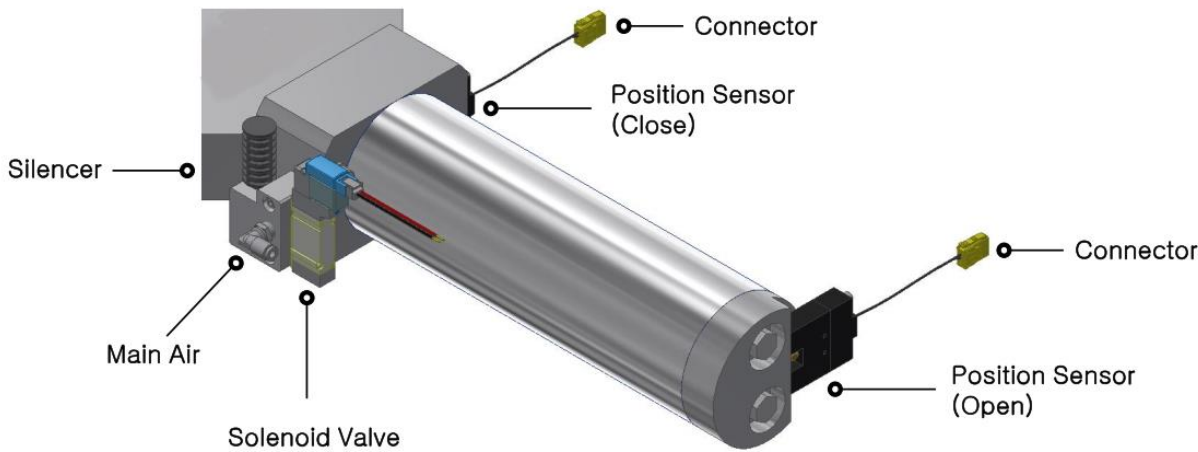
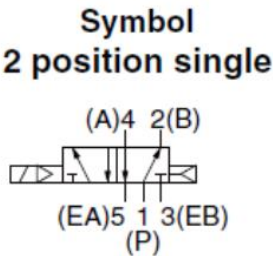




Electrical Connection	
3M 3P Male (37103-3122-000FL)	
1	—
2	—
3	— N/A

Solenoid Valve

Solenoid Specifications	
Manufacturer	SMC
Model	SY3140-5MZ
Voltage Range	24VDC
Pressure Range	22-86psi

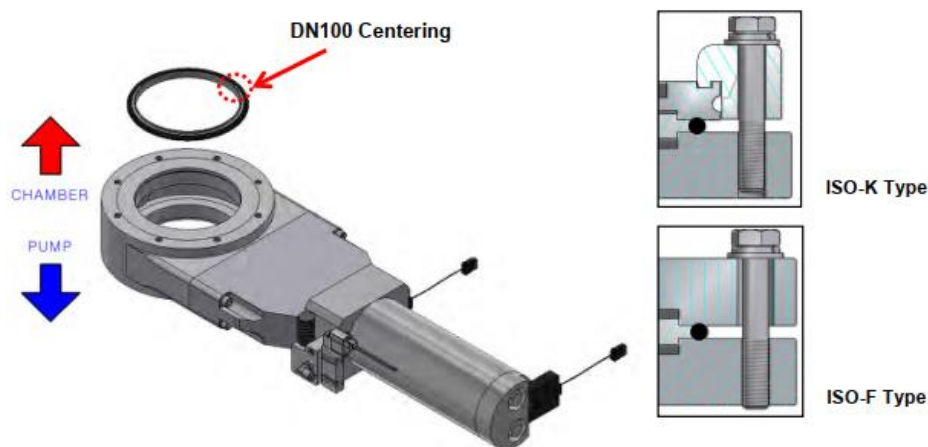


Installation

Cautions

1. Use alcohol to clean the product prior to mounting so that foreign particles do not get inside the valve.
2. Air tube connection and electrical connections are completed after mounting the valve to the vacuum system.
3. Never put hands, fingers, tools or any other objects on or in the product when operating.

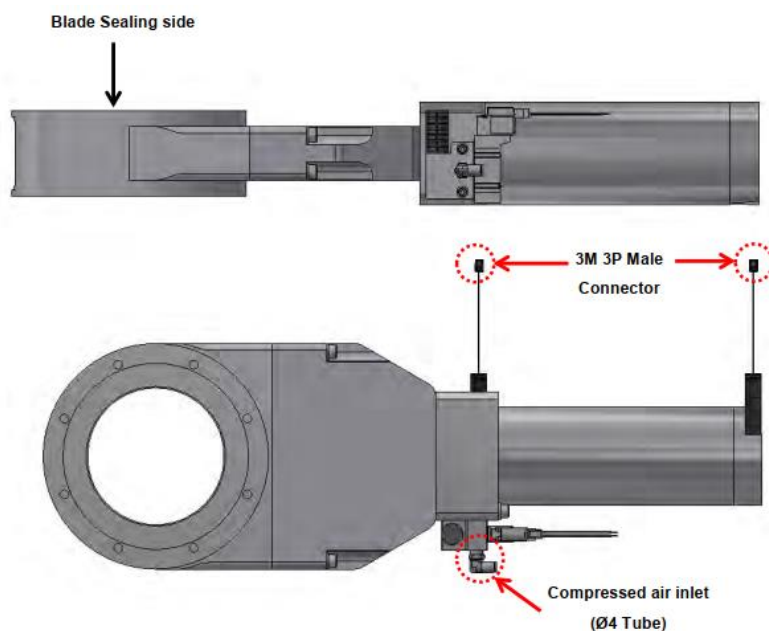
Mounting side to vacuum system



1. Do not forget to insert a centering ring on the groove before bolting flanges (see above).
2. Air connection 4mm OD

Air Tube and Sensing Connection

1. Recommended air pressure is 0.5MPa (0.45 – 0.6Mpa)
2. Air tube diameter 4mm



Maintenance and Repairs

1. Preparing Parts and Tools

This product does not need to be maintained for the specified guaranteed period under clean circumstances. However you may need to maintain or repair the product within the period depending on user circumstances.

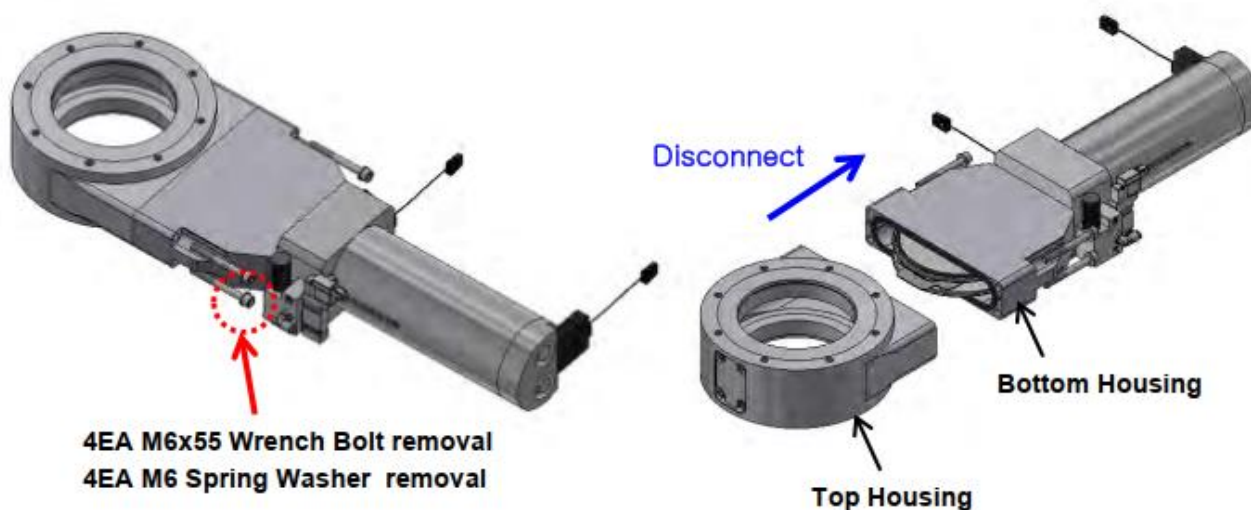
CAUTION: If you want to maintain or repair the product on your own, please do so in a clean room to prevent particulates from entering the valve. Be sure to fully understand all instructions and safety precautions before proceeding with any maintenance.

1.1 Needed Parts and Tools

- Metric wrench set
- O-Ring Pick
- Rubber Gloves
- De-ionized water
- Clean wipe

1.2 Pre-work

- 1) Ensure that the chamber is vented and the valve is in the open position
- 2) Disconnect the compressed air and sensor connections
- 3) Remove the bolts and washers to disconnect the Top Housing from the Bottom Housing



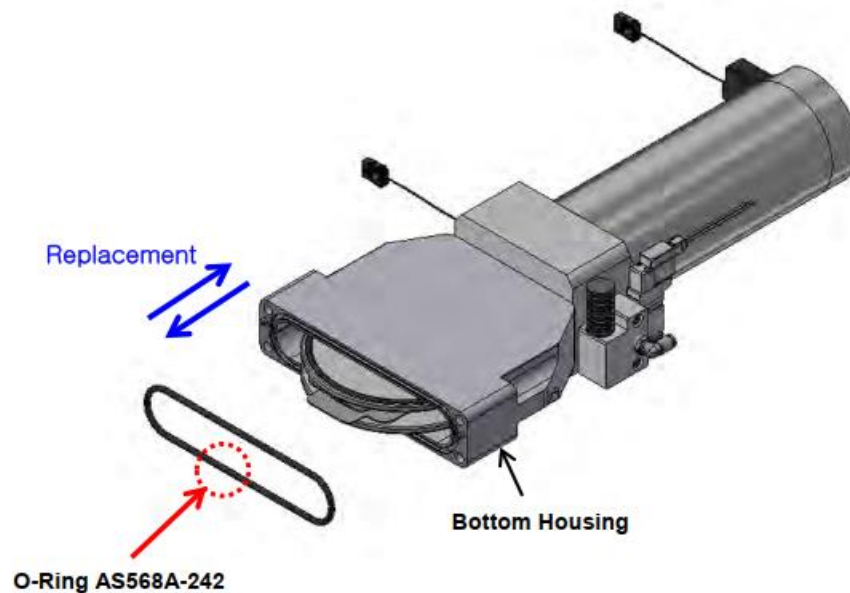
2. Housing (Body) Cleaning and O-Ring Replacement

2.1 Housing Cleaning

- 1) Clean the top housing with de-ionized water
 - a. Depending on the cleanliness of the valve, alcohol may be used
- 2) Clean the bottom housing with de-ionized water

2.2 Housing O-Ring Replacement

- 1) Remove the O-ring from the bottom housing using an O-ring pick
- 2) Before replacing the new O-ring, clean the O-ring groove and insert the new O-ring carefully.
- 3) After finishing the previous steps, assemble the top and bottom housings in the reverse of how it was disassembled.



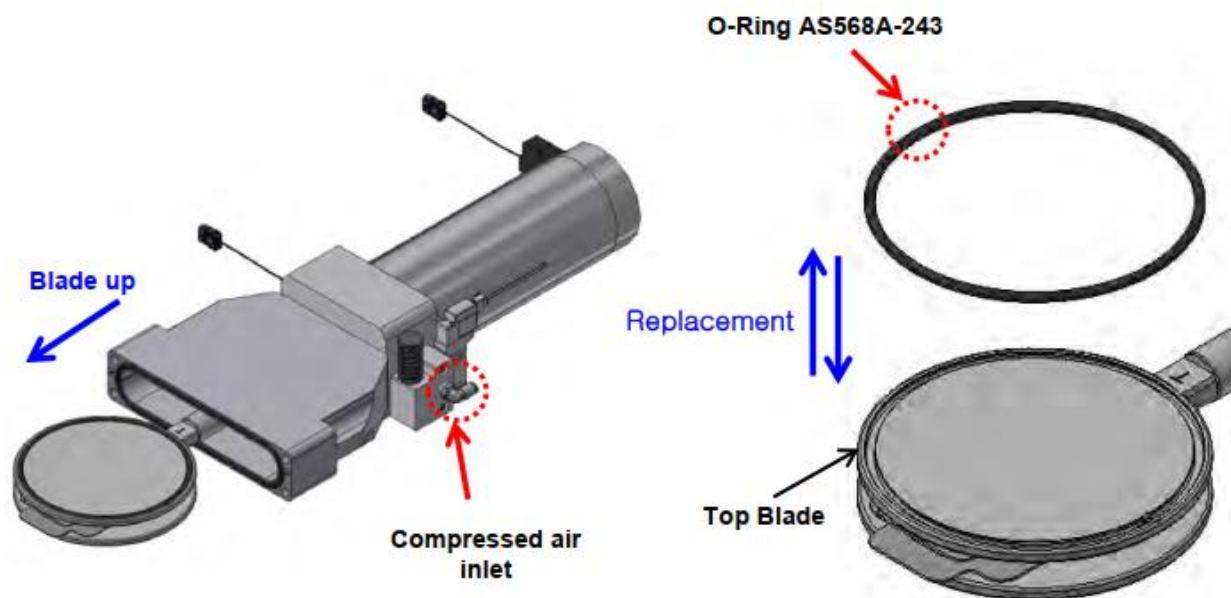
3. Gate Cleaning and O-Ring Replacement

3.1 Gate Cleaning

- 1) Move the gate (blade) to the "up" or "closed" position after disconnecting the top housing from the bottom housing.
- 2) Clean the gate with de-ionized water

3.2 Gate O-Ring Replacement

- 1) Remove the old O-ring from the gate using an O-ring pick
- 2) Before replacing the O-ring, clean the O-ring groove and the new O-ring
- 3) After finishing the previous steps, assemble the top and bottom housings in the reverse of how it was disassembled.



Troubleshooting

- 1) Before requesting inspection or service, please refer to the following table.
- 2) When asking for inspection, service, or general information, please include the following:
 - a. Model Number
 - b. Serial Number
 - c. Date of purchase and installation

Issue	What to check	Solution
Valve operation	Air cylinder leak Input air pressure Air tube connecting Position sensor	Cylinder repair or replacement Adjust air pressure Ensure correct air tube size Adjust sensor position or replace
Sensor	Sensor Connection Position sensor	Correct the sensor connection or replace Correct the sensor position or replace
Internal Leak	Gate seal contamination Gate seal damage Input air pressure	Clean the gate Replace gate seal Adjust air pressure
External Leak	Housing seal contamination Flange leak Shaft seal leak Bonnet seal damage	Cleaning Cleaning and/or flange seal replacement Repair/replace shaft seal Replace bonnet seal

Contact for Service



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