

**Pneumatic Division**

Richland, Michigan USA

[www.parker.com/pneumatics](http://www.parker.com/pneumatics)**ASC/ASV SERIES AIR SAVER UNIT****Bulletin Description**

- |                          |                                                                                          |
|--------------------------|------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | <a href="#">ASC/ASO500</a> Operation Manual, Installation Instructions                   |
| <input type="checkbox"/> | <a href="#">ASV200</a> Operation Manual, Installation Instructions                       |
| <input type="checkbox"/> | <a href="#">ASV2000, 5000, 130000, 15000</a> Operation Manual, Installation Instructions |
| <input type="checkbox"/> | <a href="#">PDN Safety Guide</a>                                                         |



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additional instruction sheets.

# Operation Manual / Air Saver Unit ASC/ASO 500 Series



## Operating Manual

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## For Safety Use

The following safety precautions are provided to prevent damage and injury to personnel and to provide instructions on the correct usage of this product. These precautions are classified into 3 categories: "CAUTION", "WARNING", and "DANGER" according to the severity of possible injury or damage and the likelihood of such injury or damage. Be sure to comply with all precautions. Also comply with safety regulations such as ISO 4414(\*1), Industrial Safety and Health Law, and High Pressure Gas Safety Law.

|  |                |                                                                                                                                                                          |
|--|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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|  | <b>Warning</b> | Indicates a potentially hazardous situation which may arise due to improper handling or operation and could result in serious personal injury or death.                  |
|  | <b>Caution</b> | Indicates a potentially hazardous situation which may arise due to improper handling or operation and could result in personal injury or property-damage-only accidents. |

\*1 ISO 4414: Pneumatic fluid power recommendations for the application of equipment to transmission control system

## Warning

- **The applicability of pneumatic equipment to the intended system should be judged by the pneumatic system designer or the personnel who determined specifications for such system.**

As operating conditions for products contained in this instruction are diversified, the applicability of pneumatic equipment to the intended system should be determined by the pneumatic system designer or the personnel who determined specifications for such system after conducting an analysis or testing as necessary. Before making a system, the system designer should thoroughly examine all specifications for such a system and also take into consideration the possibility of any trouble with the equipment.

- **The pneumatic equipment should be handled by persons who have sufficient knowledge and rich experience.**

Improper handling of compressed air will result in danger. Assembling, operation and maintenance of machinery using pneumatic equipment should be performed by persons who have sufficient knowledge and rich experience.

- **Never operate machinery nor remove the equipment until safety is assured.**

Before checking or servicing machinery and equipment, be sure to check that steps for prevention of dropping or runaway of the driven component have been completely taken. When removing the equipment, make sure that the above-mentioned safety measures have been done beforehand. Then turn off air supply and power to the system and purge compressed air in the system. When restarting machinery and equipment, check that proper prevention of malfunction has been provided for and then restart carefully.

- **When using the pneumatic equipment in the following conditions or environments, take the proper safety measures and consult Parker beforehand.**

- Conditions and environments other than specified and outdoor use.
- Applications to nuclear power equipment, railroads, aircraft, vehicles, medical equipment, equipment connected with food and drink, amusement facilities and safety devices such as emergency interruption devices, clutch/brake circuits for a press and the likes.
- Applications which require extreme safety and will also greatly affect human and property.

## 1. General Information

This product is a pulse air generation unit with built-in soft seal pneumatic valve. This product is mainly for reducing air consumption in air blowing applications.

## 2. Ordering Instructions

### ASC500 - 1W - 01

|                 | ①                                                 | ② | ③ |
|-----------------|---------------------------------------------------|---|---|
| ①Model No.      | ASC500: Normal close (2-position single solenoid) |   |   |
|                 | ASO500: Normal open (2-position single solenoid)  |   |   |
| ②Voltage/Wiring | 1W: 24VDC, e-CON standard 4-polar socket          |   |   |
| ③Port size      | 01: BSPT1/8, 10:BSPP1/8, 90:NPT1/8                |   |   |

## 3. Specifications

| Model No.                       | Unit       | ASC/ASO500                                            |
|---------------------------------|------------|-------------------------------------------------------|
| Function                        | -          | Normal close   Normal open                            |
| Fluid                           | -          | Non-lubricated/lubricated air                         |
| Port size                       | -          | 1/8                                                   |
| Flow                            | L/min(ANR) | 450 (at 5 bar)                                        |
| Pressure range                  | bar        | 2 to 7 <sup>Note 2)</sup>   2 to 5 <sup>Note 2)</sup> |
| Blow                            | -          | Pulse blow/ Continuous blow                           |
| Ambient temperature             | °C         | -5 ~ 50 <sup>Note 1)</sup>                            |
| Rated voltage                   | V          | DC24                                                  |
| Power consumption               | W          | 1.2                                                   |
| Insulation grade                | -          | JIS Grade E                                           |
| Permissible voltage fluctuation | %          | +/-10                                                 |
| Wiring                          | -          | Specific 4-polar socket                               |
| Weight                          | g          | 210                                                   |

Note 1) When ambient temperature of the unit goes below 5°C, complete dry air shall be supplied to prevent freezing.

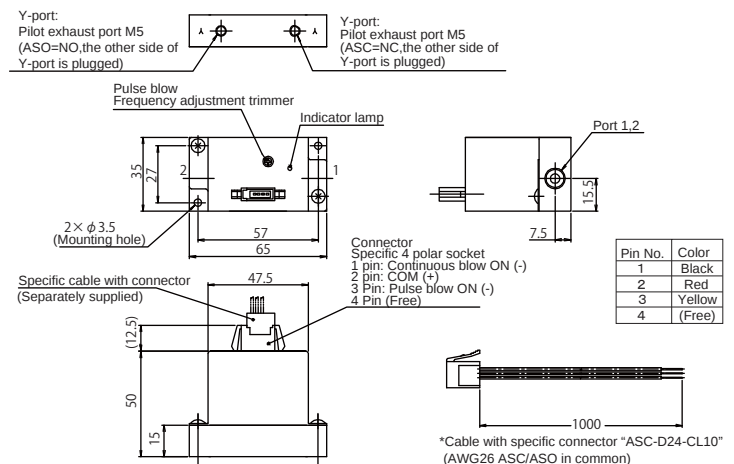
Note 2) ASC500/ASO500 series are internal pilot operated units. Therefore, during air blow operation, the supply pressure should be more than 2 bar.

\* Cable with e-CON connector (ASC-D24-CL10) will be ordered separately.

## 3. Dimensions

ASC500-1W-\*\* / ASO500-1W-\*\*

Unit(mm)



(Piping)

Port 1 : Supply port (Compressor side)

Port 2 : Outlet port (Blow nozzle side)

Y port : Pilot exhaust port \* In order to avoid dust, air muffler is recommended to attach.

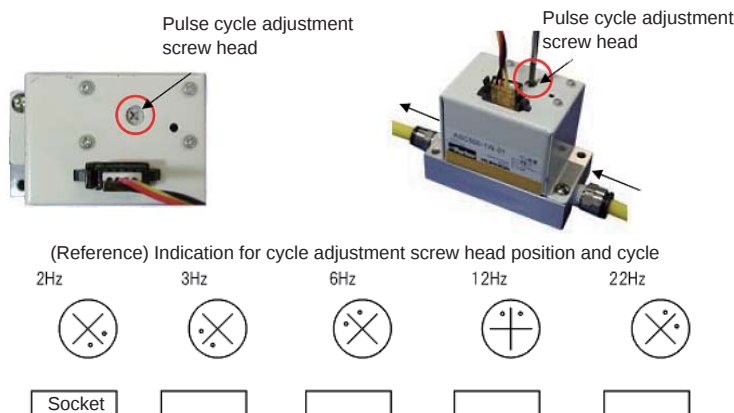
## Power distribution/ Air output

Continuous blow: Pin 1(-), Pin 2(+)

Pulse blow: Pin 2(+), Pin 3(-)

## How to adjust pulse cycles

The pulsed air cycle is adjusted by turning cycle adjustment screw head on the top of this unit. If screw head is rotated clockwise (CW), pulse cycle speed up. Use cross slot screwdriver to rotate the screw head. If screw head is rotated counter clockwise (CCW), pulse cycle slow down. Pulse cycle speed range is about 2 to 22Hz, and pulse air ON:OFF duty ratio is 1:1



## 5. Notes for usage

- Before piping  
Thoroughly flush the inside of any pipes to remove chips, coolant, dust and etc.
- Air quality
  - Air Saver requires an air filter with filtration of 5μm or finer.
  - If it is difficult to make filter drain management periodically, Parker recommends setting up an air filter with automatic drain mechanism.
  - Be sure to take proper maintenance for a compressor. If sludge produced in compressor oil enters pneumatic equipment, it will cause operation failure of pneumatic equipment. Parker recommends setting up a coalescing filter after a filter.
- Pneumatic circuit  
ASC/O500 series is internal pilot operated valve unit. To avoid malfunctions due to pressure drops, supply air pressure must be more than 2 bar at all times. To avoid pressure drops during air blowing process, set up relatively higher pressure and use tubes with proper diameter.
- Lubrication  
This unit does not require lubrication. **Do not lubricate.**

## 6. Failure and trouble shooting

### a) Failure and countermeasure

| Failure condition                      |                      | Cause                                                                             | Countermeasure                                                                                                                   |
|----------------------------------------|----------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| The unit cannot be operated.           |                      | Supply air might be less than 2 bar during operation.                             | Adjust supply air pressure properly.                                                                                             |
|                                        |                      | Valve part is contaminated with dust or sludge.                                   | 1)Replace the product.<br>2)If an air filter is not used, use an air filter.<br>3)If problem is sludge, use a coalescing filter. |
| Operating frequency is getting slower. |                      | Dust or high viscosity oil is trapped in the valve and it obstructs the spool.    | 1)Replace the product.<br>2)If air filter is not used, use an air filter.                                                        |
|                                        |                      | Contaminant is caught inside of the pneumatic circuit, and it blocks up the flow. | Replace the logic element.                                                                                                       |
|                                        |                      | Contaminant accumulated in the exhaust port, obstructing the air flow.            | Clean air mufflers or replace them.                                                                                              |
| Substantial air leakage is observed.   | From main valve part | Spool seal rings are damaged.                                                     | Replace the master valve.                                                                                                        |
|                                        | From base gasket     | Tightening torque for mounting screws is not enough to mount valve.               | Tighten mounting screws to appropriate torque.                                                                                   |

## 7. Maintenance and disassembly

Regarding repair and maintenance, please consult Parker.

As a general rule, do not attempt maintenance or disassemble. If it is absolutely necessary to do maintenance work, keep the following points in mind.

- 1) Make sure that the actuators such as cylinders will not cause damage if they move.
- 2) Cut off electricity.
- 3) Cut off pneumatic pressure and exhaust air in the line.
- 4) Clean up the surroundings of the valve.

### Caution

Any attempt to repair and/or disassembling of the product by the user violates the warranty and Parker. Does not take any responsibility for damage and injury caused by it.

## Operating Manual

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Before checking or servicing machinery and equipment, be sure to check that steps for prevention of dropping or runaway of the driven component have been completely taken.

When removing the equipment, make sure that the above-mentioned safety measures have been done beforehand. Then turn off air supply and power to the system and purge compressed air in the system. When restarting machinery and equipment, check that proper prevention of malfunction has been provided for and then restart carefully.

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- Applications which require extreme safety and will also greatly affect human and property.

## 1. General Information

This product is a pulse air generation unit with built-in soft seal pneumatic valve. This product is mainly for reducing air consumption in air blowing applications.

## 2. Ordering Instructions

### ASV200 - AA - M5

| ①               | ②            | ③                                                       |
|-----------------|--------------|---------------------------------------------------------|
| ①Model No.      | ASV200       | (Air Saver Unit pneumatic operate, internal pilot type) |
| ②Voltage/Wiring | AA : All air | (No electrical wiring)                                  |
| ③Port size      | M5           |                                                         |

## 3. Specifications

| Model No.                  | Unit                     | ASV200                         |
|----------------------------|--------------------------|--------------------------------|
| Way to operate             |                          | Pneumatic, Internal pilot type |
| Fluid                      | -                        | Non-lubricated/lubricated air  |
| Port size                  | -                        | M5                             |
| Sonic speed conductance    | dm <sup>3</sup> /(s·bar) | 0.36                           |
| Critical pressure ratio    | -                        | 0.25                           |
| Effective area (reference) | mm <sup>2</sup>          | 1.8                            |
| Ambient temperature        | °C                       | -5 ~ 50 <small>Note 1)</small> |
| Operating pressure range   | Bar                      | 3~7 <small>Note 2)</small>     |
| Max. frequency             | Hz                       | 5                              |
| Weight                     | g                        | 210                            |

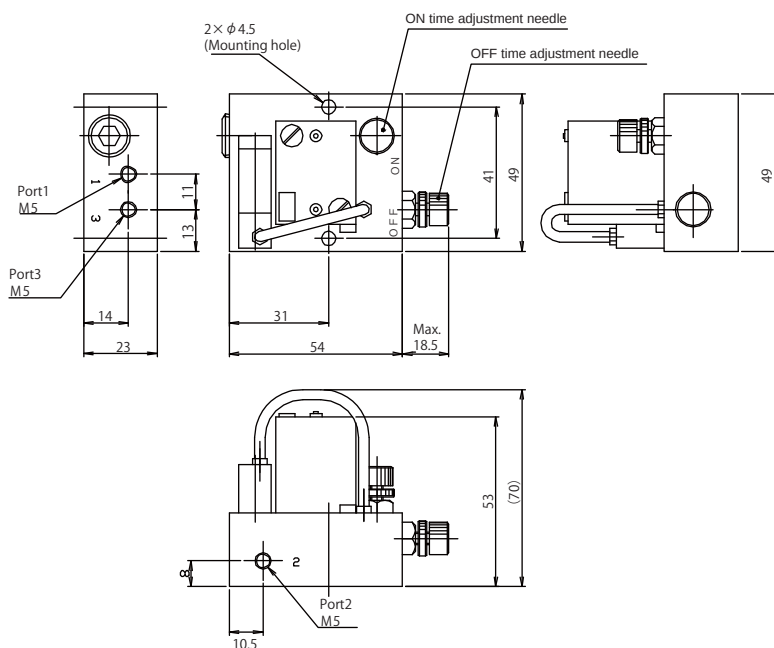
Note 1) When ambient temperature of the unit goes below 5°C, complete dry air shall be supplied to prevent freezing.

Note 2) ASV200 is internal pilot operated valve. If the supply pressure come to be lower than 3 bar, ASV200 might not be switched properly. Please make sure to supply specified operating pressure.

## 4. Dimensions

ASV200-AA-M5

Unit(mm)



(Piping)

Port 1 : Supply port (Compressor side)

Port 2 : Outlet port (Blow nozzle side)

Port 3 : Exhaust port \* In order to avoid dust, air muffler (model No.SL-M5) is recommended to attach.

## Preparation for air supply and adjustment of pulse time.

- 1) After piping to Air Saver Unit and while the supply air is shut off, fully close the ON time adjustment needle (clockwise rotation) and fully loosen the OFF time adjustment needle (counter clockwise rotation). It is suggested to mark these needle positions, it may be convenient to use those marks later as an indication of needle rotation.
- 2) Turn on air to the supply port, air should pass to the output port continuously.
- 3) Slowly loosen the ON time adjustment needle in CCW direction. A pulsed air blow with short OFF time will start. It is suggested to stop rotating the ON time adjustment needle at around 1 turn.

- 4) Next, adjust the OFF time by slowly tightening the OFF time adjustment needle in CW direction. The OFF time of the pulsed air blow will get longer. Stop rotating the OFF time adjustment needle at around 8 turns. 4Hz (ON/OFF about 50%) air blow should be achieved.
- 5) Use the procedure of 4) as a starting point and make the frequency and duty adjustments required in your application by using the ON time and OFF time adjustment needles.
- 6) Fix the adjustment position by tightening lock nuts on adjustment screws.

### Adjustment of pulse air ON/OFF time

|                            | Tighten (Clockwise) | Loosen (Counter clockwise) |
|----------------------------|---------------------|----------------------------|
| Pulsed air cycle           | Slow                | Fast                       |
| ON time adjustment needle  | Longer ON time      | Shorter ON time            |
| OFF time adjustment needle | Longer OFF time     | Shorter OFF time           |

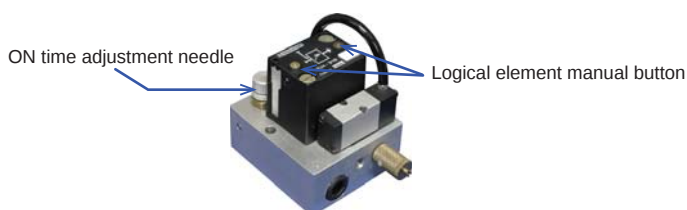
**\*Adjust frequency of pulsed air to less than 5 Hz. If frequency of pulsed air is higher than 5 Hz, operation of the pneumatic circuit (logic element) may become unstable.**

### How to stop the operation of Air Saver Unit

- 1) Fully tighten ON time adjustment needle.
- 2) Fully tighten OFF time adjustment needle. In case that needles are fully tightened and output air blow is continued, push the manual button of logical element temporarily.
- 3) Cut the supply air to the Air Saver Unit.

### Caution

When air blow is not desired, be sure to cut air supply to the Air Saver Unit. Air blow may come out even the ON/OFF time adjustment needles are fully tightened. This unit is not designed to be an "OFF" valve.



### 5. Notes for usage

- A) Before piping  
Thoroughly flush the inside of any pipes to remove chips, coolant, dust and etc.
- B) Air quality
  - 1) Air Saver requires an air filter with filtration of 5µm or finer.
  - 2) If it is difficult to make filter drain management periodically, Parker recommends setting up an air filter with automatic drain mechanism.
  - 3) Be sure to take proper maintenance for a compressor. If sludge produced in compressor oil enters pneumatic equipment, it will cause operation failure of pneumatic equipment. Parker recommends setting up a coalescing filter after a filter.
- C) Pneumatic circuit  
This unit is internal pilot operated valve. To avoid malfunctions due to pressure drops, the air supply pressure must be more than 3 bar at all times. To avoid pressure drops during air blowing process, set up relatively higher supply pressure and use tubes with proper diameter.
- D) Stopping the air blow  
Be sure to cut air supply to Air Saver Unit when air blow is not used. Blown air may come out even if the ON/OFF time adjustment needles are fully tightened.

### 6. Failure and trouble shooting

a) Failure and countermeasure

| Failure condition                      | Cause                                                                             | Countermeasure                                                                                                                      |
|----------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| The unit cannot be operated.           | Supply air might be less than 3 bar during operation.                             | Adjust supply air pressure properly.                                                                                                |
|                                        | Valve part is contaminated with dust or sludge.                                   | 1) Replace the product.<br>2) If an air filter is not used, use an air filter.<br>3) If problem is sludge, use a coalescing filter. |
| Operating frequency is getting slower. | Dust or high viscosity oil is trapped in the valve and it obstructs the spool.    | 1) Replace the product.<br>2) If air filter is not used, use an air filter.                                                         |
|                                        | Contaminant is caught inside of the pneumatic circuit, and it blocks up the flow. | Replace the logic element.                                                                                                          |
|                                        | Contaminant accumulated in the exhaust port, obstructing the air flow.            | Clean air mufflers or replace them.                                                                                                 |
| Substantial air leakage is observed.   | From main valve part                                                              | Spool seal rings are damaged.<br>Replace the master valve.                                                                          |
|                                        | From base gasket                                                                  | Tightening torque for mounting screws is not enough to mount valve.<br>Tighten mounting screws to appropriate torque.               |

### 7. Maintenance and disassembly

Regarding repair and maintenance, please consult Parker.

As a general rule, do not attempt maintenance or disassemble. If it is absolutely necessary to do maintenance work, keep the following points in mind.

- 1) Make sure that the actuators such as cylinders will not cause damage if they move.
- 2) Cut off electricity.
- 3) Cut off pneumatic pressure and exhaust air in the line.
- 4) Clean up the surroundings of the valve.

### Caution

Any attempt to repair and/or disassembling of the product by the user violates the warranty and Parker does not take any responsibility for damage and injury caused by it.

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# Operation Manual / Air Saver Unit ASV2000, 5000, 13000, 15000 Series



## Operating Manual

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- **Never operate machinery nor remove the equipment until safety is assured.**

Before checking or servicing machinery and equipment, be sure to check that steps for prevention of dropping or runaway of the driven component have been completely taken. When removing the equipment, make sure that the above-mentioned safety measures have been done beforehand. Then turn off air supply and power to the system and purge compressed air in the system. When restarting machinery and equipment, check that proper prevention of malfunction has been provided for and then restart carefully.

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- Conditions and environments other than specified and outdoor use.
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- Applications which require extreme safety and will also greatly affect human and property.

## 1. General Information

This product is a pulse air generation unit with built-in soft seal (ASV5000), and metal seal (ASV2000, ASV13000 & ASV15000) pneumatic valve. This product is mainly for reducing air consumption in air blowing applications.

## 2. Ordering Instructions

**Please refer to our catalog – Air Saver Unit.**

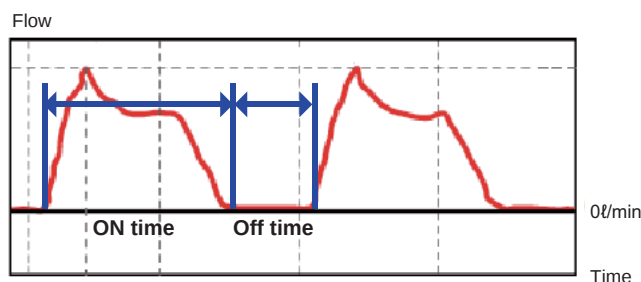
Note 1) When ambient temperature of the unit goes below 5°C, complete dry air shall be supplied to prevent freezing.

Note 2) The featured Air Saver Units are external pilot operated unit. Therefore, during air blow operation, external pilot pressure should be more than 3 bar. **Please make sure to supply more than 3 bar for external pilot air supply port at all time.**

## 3. Specifications

**Please refer to our catalog – Air Saver Unit.**

## 4. How to adjust pulse cycles



**Only for ASV13000 & 15000: Confirm "Continuous/Pulse Needle" is fully opened before adjusting pulse cycles.**

- 1) Do not supply air to the unit when adjusting the Continuous/Pulse Needle
- 2) The "Continuous/Pulse Needle" should be fully opened by loosening the needle in CCW direction, and fix its position by a lock nut (Shipment condition).
- 3) When the "Continuous/Pulse Needle" is fully closed, the main valve position keeps the "ON" condition and does not create pulsed blow.

### Continuous/Pulse needle

#### ASV13000 & ASV15000



ON (Continuous blow)



OFF (Pulse blow)

## Preparation for air supply and adjustment of pulse time

- 1) After piping to Air Saver Unit and while the supply air is shut off, fully close the ON time adjustment needle (clockwise rotation) and fully loosen the OFF time adjustment needle (counter clockwise rotation). There are dots on the screw heads of adjustment needles. Please use the dots for position indication of ON/OFF adjustment.
- 2) Turn on air to the supply port, air should pass to the output port continuously.
- 3) Slowly loosen the ON time adjustment needle in CCW direction. A pulsed air blow with short OFF time will start. It is suggested to stop rotating the ON time adjustment needle at around 3 turns (for ASV2000), 2 turns (for ASV5000), or 1.5 turns (for ASV13000&15000) in CCW direction.
- 4) **ASV2000&ASV5000:**  
Next, adjust the OFF time by slowly tightening the OFF time adjustment needle in CW direction. The OFF time of the pulsed air blow will get longer. Stop rotating the OFF time adjustment needle at around 7 turns (for ASV2000) or 5 turns (for ASV5000). This should result in about 50% ON/OFF duty of pulsed air blow at 1.5Hz (ASV2000) or 2Hz(ASV5000).
- ASV13000&15000:**  
Close OFF time adjustment needle fully by screwing the needle in CW direction. Then, slowly loosen about 2 turns in CCW direction. This should result in about 1Hz and 50% duty pulsed air blow.
- 5) Use the procedure of 4) as a starting point, and make the frequency and duty adjustments required in your application by using the ON time and OFF time adjustment needles.
- 6) Fix the adjustment position by tightening lock nuts on adjustment screws.

|                            | Tighten (Clockwise) | Loosen (Counter clockwise) |
|----------------------------|---------------------|----------------------------|
| Pulsed air cycle           | Slow                | Fast                       |
| ON time adjustment needle  | Longer ON time      | Shorter ON time            |
| OFF time adjustment needle | Longer OFF time     | Shorter OFF time           |

**\*Adjust frequency of pulsed air to less than 5Hz (ASV2000&ASV5000), 0.1~1Hz (ASV13000&15000). If frequency of pulsed air is higher than 5 Hz, (ASV2000&ASV5000), 1Hz (ASV13000&ASV15000), operation of the pneumatic circuit (logic element) may become unstable.**

### Caution

When air blow is not desired, be sure to cut air supply to the Air Saver Unit. Air blow may come out even the ON/OFF time adjustment needles are fully tightened. This unit is not designed to be an "OFF" valve.

## 5. Notes for usage

- A) Before piping  
Thoroughly flush the inside of any pipes to remove chips, coolant, dust and etc.
- B) Air quality
  - 1) Air Saver requires an air filter with filtration of 5µm or finer.
  - 2) If it is difficult to make filter drain management periodically, Parker recommends setting up an air filter with automatic drain mechanism.
  - 3) Be sure to take proper maintenance for a compressor. If sludge produced in compressor oil enters pneumatic equipment, it will cause operation failure of pneumatic equipment. Parker recommends setting up a coalescing filter after a filter.
- C) Pneumatic circuit  
This unit is external pilot operated valve. To avoid malfunctions due to pressure drops, the external pilot air supply pressure must be more than 3 bar at all times. To avoid pressure drops during air blowing process, set up relatively higher supply pressure and use tubes with proper diameter.
- D) Stopping the air blow  
Be sure to cut air supply to Air Saver Unit when air blow is not used. Blown air may come out even if the ON/OFF time adjustment needles are fully tightened.
- E) Lubrication  
This product does not require lubricated air.  
**Please do not lubricate it.**

## 6. Failure and trouble shooting

### a) Failure and countermeasure

| Failure condition                      | Cause                                                                             | Countermeasure                                                                                                                      |
|----------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| The unit cannot be operated.           | Supply air might be less than 3 bar during operation.                             | Adjust supply air pressure properly.                                                                                                |
|                                        | Valve part is contaminated with dust or sludge.                                   | 1) Replace the product.<br>2) If an air filter is not used, use an air filter.<br>3) If problem is sludge, use a coalescing filter. |
| Operating frequency is getting slower. | Dust or high viscosity oil is trapped in the valve and it obstructs the spool.    | 1) Replace the product.<br>2) If air filter is not used, use an air filter.                                                         |
|                                        | Contaminant is caught inside of the pneumatic circuit, and it blocks up the flow. | Replace the logic element.                                                                                                          |
|                                        | Contaminant accumulated in the exhaust port, obstructing the air flow.            | Clean air mufflers or replace them.                                                                                                 |
| Substantial air leakage is observed.   | From main valve part                                                              | Spool seal rings are damaged.<br>Replace the master valve.                                                                          |
|                                        | From base gasket                                                                  | Tightening torque for mounting screws is not enough to mount valve.<br>Tighten mounting screws to appropriate torque.               |

## 7. Maintenance and disassembly

Regarding repair and maintenance, please consult Parker.

As a general rule, do not attempt maintenance or disassemble. If it is absolutely necessary to do maintenance work, keep the following points in mind.

- 1) Make sure that the actuators such as cylinders will not cause damage if they move.
- 2) Cut off electricity.
- 3) Cut off pneumatic pressure and exhaust air in the line.
- 4) Clean up the surroundings of the valve.

### Caution

Any attempt to repair and/or disassembling of the product by the user violates the warranty and Parker does not take any responsibility for damage and injury caused by it.

### Note

Any request of after-service or maintenance parts, please contact our distributors or Parker customer service. Keep this operation manual. This operation manual would be changed without notice. Please check the newest version.

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**PDNSG-1**

**Pneumatic Division Safety Guide**

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## **Safety Guide For Selecting And Using Pneumatic Division Products And Related Accessories**

### **WARNING:**

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF PNEUMATIC DIVISION PRODUCTS, ASSEMBLIES OR RELATED ITEMS ("PRODUCTS") CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:**

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work pieces or component parts being thrown off at high speeds.
- Failure of a device to function properly for example, failure to clamp or unclamp an associated item or device.
- Explosion
- Suddenly moving or falling objects.
- Release of toxic or otherwise injurious liquids or gasses.

Before selecting or using any of these Products, it is important that you read and follow the instructions below.

### **1. GENERAL INSTRUCTIONS**

- 1.1. Scope:** This safety guide is designed to cover general guidelines on the installation, use, and maintenance of Pneumatic Division Valves, FRLs (Filters, Pressure Regulators, and Lubricators), Vacuum products and related accessory components.
- 1.2. Fail-Safe:** Valves, FRLs, Vacuum products and their related components can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of associated valves, FRLs or Vacuum products will not endanger persons or property.
- 1.3. Relevant International Standards:** For a good guide to the application of a broad spectrum of pneumatic fluid power devices see: ISO 4414:1998, Pneumatic Fluid Power – General Rules Relating to Systems. See [www.iso.org](http://www.iso.org) for ordering information.
- 1.4. Distribution:** Provide a copy of this safety guide to each person that is responsible for selection, installation, or use of Valves, FRLs or Vacuum products. Do not select, or use Parker valves, FRLs or vacuum products without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the products considered or selected.
- 1.5. User Responsibility:** Due to the wide variety of operating conditions and applications for valves, FRLs, and vacuum products Parker and its distributors do not represent or warrant that any particular valve, FRL or vacuum product is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:
  - Making the final selection of the appropriate valve, FRL, Vacuum component, or accessory.
  - Assuring that all user's performance, endurance, maintenance, safety, and warning requirements are met and that the application presents no health or safety hazards.
  - Complying with all existing warning labels and / or providing all appropriate health and safety warnings on the equipment on which the valves, FRLs or Vacuum products are used; and,
  - Assuring compliance with all applicable government and industry standards.
- 1.6. Safety Devices:** Safety devices should not be removed, or defeated.
- 1.7. Warning Labels:** Warning labels should not be removed, painted over or otherwise obscured.
- 1.8. Additional Questions:** Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the product being considered or used, or call 1-800-CPARKER, or go to [www.parker.com](http://www.parker.com), for telephone numbers of the appropriate technical service department.

### **2. PRODUCT SELECTION INSTRUCTIONS**

- 2.1. Flow Rate:** The flow rate requirements of a system are frequently the primary consideration when designing any pneumatic system. System components need to be able to provide adequate flow and pressure for the desired application.
- 2.2. Pressure Rating:** Never exceed the rated pressure of a product. Consult product labeling, Pneumatic Division catalogs or the instruction sheets supplied for maximum pressure ratings.
- 2.3. Temperature Rating:** Never exceed the temperature rating of a product. Excessive heat can shorten the life expectancy of a product and result in complete product failure.
- 2.4. Environment:** Many environmental conditions can affect the integrity and suitability of a product for a given application. Pneumatic Division products are designed for use in general purpose industrial applications. If these products are to be used in unusual circumstances such as direct sunlight and/or corrosive or caustic environments, such use can shorten the useful life and lead to premature failure of a product.
- 2.5. Lubrication and Compressor Carryover:** Some modern synthetic oils can and will attack nitrile seals. If there is any possibility of synthetic oils or greases migrating into the pneumatic components check for compatibility with the seal materials used. Consult the factory or product literature for materials of construction.
- 2.6. Polycarbonate Bowls and Sight Glasses:** To avoid potential polycarbonate bowl failures:
  - Do not locate polycarbonate bowls or sight glasses in areas where they could be subject to direct sunlight, impact blow, or temperatures outside of the rated range.
  - Do not expose or clean polycarbonate bowls with detergents, chlorinated hydro-carbons, ketones, esters or certain alcohols.
  - Do not use polycarbonate bowls or sight glasses in air systems where compressors are lubricated with fire resistant fluids such as phosphate ester and di-ester lubricants.

**2.7. Chemical Compatibility:** For more information on plastic component chemical compatibility see Pneumatic Division technical bulletins Tec-3, Tec-4, and Tec-5

- 2.8. Product Rupture:** Product rupture can cause death, serious personal injury, and property damage.
- Do not connect pressure regulators or other Pneumatic Division products to bottled gas cylinders.
  - Do not exceed the maximum primary pressure rating of any pressure regulator or any system component.
  - Consult product labeling or product literature for pressure rating limitations.

### **3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS**

- 3.1. Component Inspection:** Prior to assembly or installation a careful examination of the valves, FRLs or vacuum products must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.
- 3.2. Installation Instructions:** Parker published Installation Instructions must be followed for installation of Parker valves, FRLs and vacuum components. These instructions are provided with every Parker valve or FRL sold, or by calling 1-800-CPARKER, or at [www.parker.com](http://www.parker.com).
- 3.3. Air Supply:** The air supply or control medium supplied to Valves, FRLs and Vacuum components must be moisture-free if ambient temperature can drop below freezing

### **4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS**

- 4.1. Maintenance:** Even with proper selection and installation, valve, FRL and vacuum products service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of Pneumatic Division products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.10.
- 4.2. Installation and Service Instructions:** Before attempting to service or replace any worn or damaged parts consult the appropriate Service Bulletin for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every Parker valve and FRL sold, or are available by calling 1-800-CPARKER, or by accessing the Parker web site at [www.parker.com](http://www.parker.com).
- 4.3. Lockout / Tagout Procedures:** Be sure to follow all required lockout and tagout procedures when servicing equipment. For more information see: OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – (Lockout / Tagout)
- 4.4. Visual Inspection:** Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:
- Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
  - Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
  - Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
  - Any observed improper system or component function: Immediately shut down the system and correct malfunction.
  - Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

**Caution: Leak detection solutions should be rinsed off after use.**

- 4.5. Routine Maintenance Issues:**
- Remove excessive dirt, grime and clutter from work areas.
  - Make sure all required guards and shields are in place.
- 4.6. Functional Test:** Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.
- 4.7. Service or Replacement Intervals:** It is the user's responsibility to establish appropriate service intervals. Valves, FRLs and vacuum products contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves, FRLs and vacuum components need to be serviced or replaced on routine intervals. Service intervals need to be established based on:
- Previous performance experiences.
  - Government and / or industrial standards.
  - When failures could result in unacceptable down time, equipment damage or personal injury risk.
- 4.8. Servicing or Replacing of any Worn or Damaged Parts:** To avoid unpredictable system behavior that can cause death, personal injury and property damage:
- Follow all government, state and local safety and servicing practices prior to service including but not limited to all OSHA Lockout Tagout procedures (OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – Lockout / Tagout).
  - Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
  - Disconnect air supply and depressurize all air lines connected to system and Pneumatic Division products before installation, service, or conversion.
  - Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
  - After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
  - Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.
- 4.9. Putting Serviced System Back into Operation:** Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve FRL or vacuum component to insure proper function of the system.