Operation Manual

Air Saver Unit

ASV2000
ASV5000
ASV13000
ASV15000

Thank you for your choice of product of Parker Hannifin on this time. Please read this operation manual carefully and use the product correctly. Keep this operation manual in case that question arises about this product in the future. If this operation manual becomes unreadable or parts of the unit are missing, consult our distributors or Kuroda Pneumatics Ltd. sales offices.

Kuroda Pneumatics LTD.
(Parker Hannifin Automation Division Japan)
Distributed by: Hose & Fittings, Etc.
916.372.3888
www.hoseandfittingsetc.com

Contents

For safety use ・・・・・・・・・・・・・・・・・・・・・・ P2
Warning ・・・・・・・・・・・・・・・・・・・・・・・・・・ P2
1. General Information ・・・・・・・・・・・・・・・・・・ P3
2. Specifications ・・・・・・・・・・・・・・・・・・・・・・ P3
3. Dimensions ・・・・・・・・・・・・・・・・・・・・・・・・ P3
4. Adjusting Pulse Cycles ・・・・・・・・・・・・・・・・・ P3
5. Notes for usage ・・・・・・・・・・・・・・・・・・・・・・ P5
6. Failure and trouble shooting ・・・・・・・・・・・・・・・ P6
7. Maintenance and disassembly ・・・・・・・・・・・・・・ P6

For Safety Use

Be sure to read the following instructions before 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 degree of possible injury or damage and the degree of impendence of such injury or damage. Be sure to comply with all precautions along with JIS B 8370(*1) and ISO 4414(*2), as they include important content regarding safety. Also, be sure about Industrial Safety and Health Law, High Pressure Gas Safety Law and other safety laws.

Danger:	Indicates an impending hazardous situation which may arise due to improper handling or operation and could result in serious personal injury or death.
Warning:	Indicates a potentially hazardous situation which may arise due to improper handling or operation and could result in serious personal injury or death.
Caution:	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 JIS B8370 : General Rules for Pneumatic Systems
*2 ISO 4414 : Pneumatic fluid power recommendation for the application of equipment to transmission control systems.

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 machinery and equipment is restarted, check that proper prevention of malfunction has been provided for and then restart carefully.

- **When using the pneumatic equipment in the following conditions or environment, 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 (ASV5000), and metal seal (ASV2000, ASV13000 & ASV15000) pneumatic valve. This product is mainly for reducing air consumption in air blowing applications.

2. Specifications:

Please refer to our catalog 0698P – Air Saver Unit.

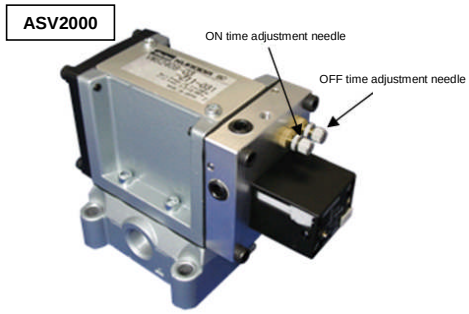
Note 1) When ambient temperature of the unit goes below 5℃, complete dry air shall be supplied to prevent freezing.

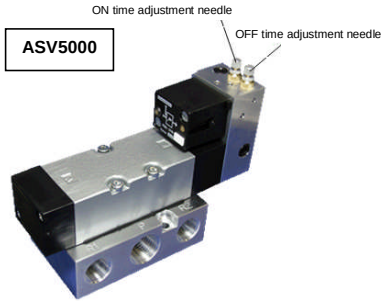
Note 2) The featured Air Saver Units are external pilot operated unit. Therefore, during air blow operation, external pilot pressure should be more than 0.3MPa. **Please make sure to supply more than 0.3MPa for external pilot air supply port at all time.**

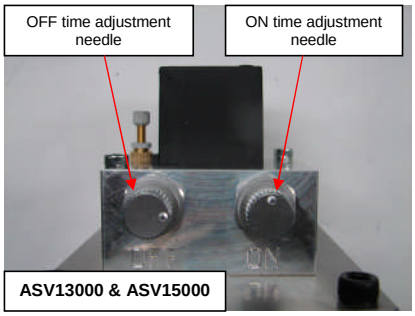
3. Dimensions:

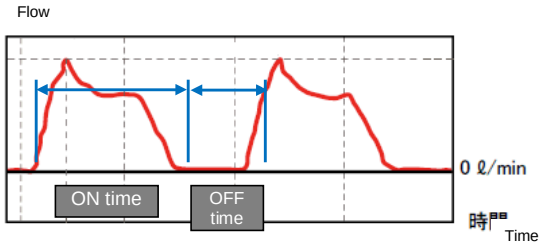
Please refer to our catalog 0698P – Air Saver Unit.

4. How to adjust pulse cycles







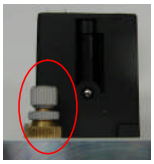


Only for ASV13000 & 15000: Confirm "Continuous/Pulse Needle" is fully opened before adjusting pulse cycles.

1) Do not supply air to the unit when adjusting the Continuous/Pulse Needle
2) The "Continuous/Pulse Needle" should be fully opened by loosing 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 1.5Hz 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&5000) or less than 1Hz (ASV13000&15000). If frequency of pulsed air is higher than 5Hz (ASV2000&5000) or 1Hz(ASV13000&15000), operation of all pneumatic circuit (logistic 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. Keep in mind that air blow may come out, even though, OFF time adjustment needle is fully tightened.
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, Kuroda Pneumatics LTD 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. Kuroda Pneumatics LTD recommends setting up a coalescing filter after a filter.

C) Pneumatic circuit

This unit requires supply air to an external pilot port. The main valve position is switched by pilot air pressure. In order to avoid malfunctions due to pressure drops, pilot air pressure must be more than 0.3MPa at all times. In order to avoid pressure drop during air blowing, consider revising your piping, setting relatively higher pilot pressure and using tubes with proper diameter. The air for the air blow and pilot air is recommended to be piped from a separate source.

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.		Pilot air is less than 0.3MPa during operation.	Adjust pilot air pressure properly.
		Valve part is contaminated with dust or sludge.	1) Replace the product. 2) If an air filter is not used, use an air filter. 3) If the 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. 2) If air filter is not used, use an air filter.
		Contaminant is caught inside the pneumatic circuit, blocking the flow.	Replace the product.
		Contaminant accumulated in the exhaust port, obstructing the air flow.	Replace the product.
Substantial air leakage is observed.	From main valve part	Spool seal rings are damaged.	Replace the valve part.
	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 to Kuroda Pneumatics LTD.

As a general rule, do not attempt to 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 any 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 disassemble 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.