

Operation Manual

Air Saver Unit

ASV13000/15000 series

Thank you for your choice of Kuroda Pneumatics LTDs' product 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.
URL: <http://www.parkerkuroda.com/>

Contents

For safety use · · · · ·	P2
Warning · · · · ·	P2
1. ASV13000/15000: Series general information · · · ·	P3
2. Ordering Instructions · · · · ·	P3
3. Specifications · · · · ·	P3
4. Dimensions · · · · ·	P5
5. How to adjust pulse cycle · · · · ·	P6
6. Notes for usage · · · · ·	P7
7. Failure and trouble shooting · · · · ·	P8
8. Maintenance and disassembly · · · · ·	P8

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 Kuroda Pneumatics LTD 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 metal seal pneumatic valve. This product is mainly for reducing air consumption in air blowing applications.

2. Ordering Instructions

ASV13000 – AA – 25A

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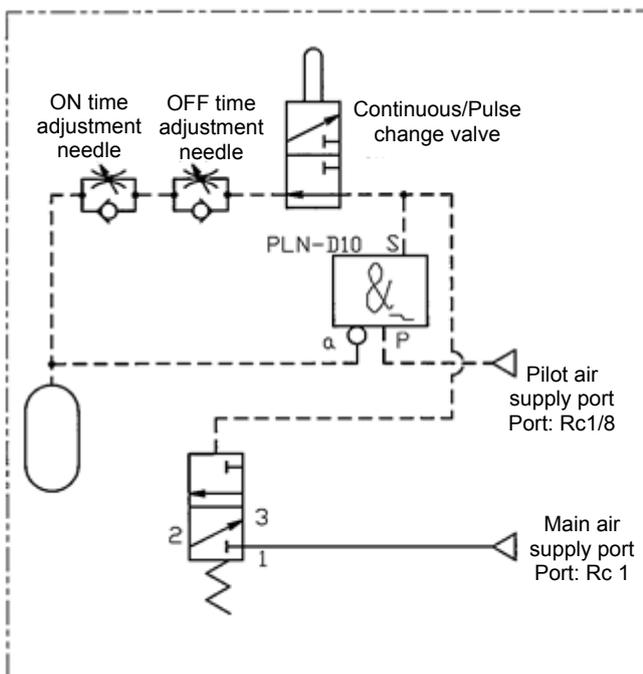
②

③

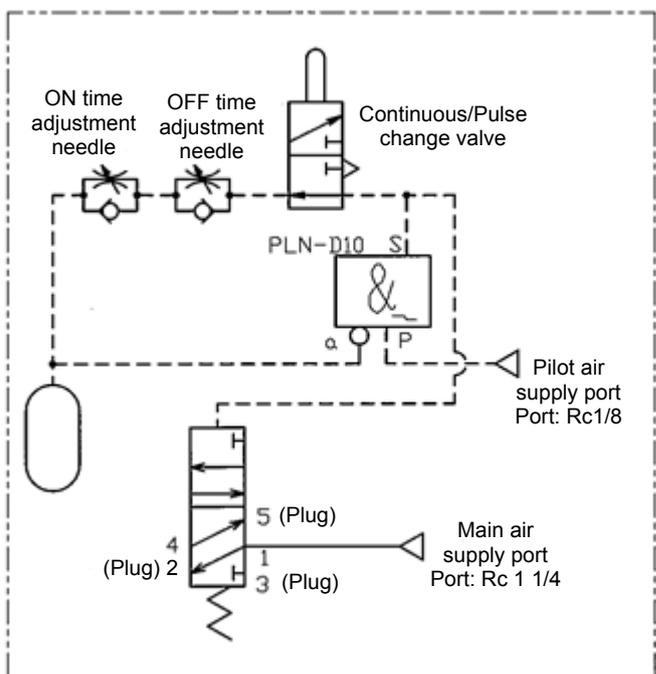
- ① Model No. ASV13000: Normal close (2-position, single)
ASV15000: Normal close (2-position, single)
- ② Voltage/Wiring AA: All air (No electrical wiring)
- ③ Port size No mark : without sub-base (ASV15000 only)
25A : Rc 1 (ASV13000)
32A : Rc 1 1/4 (ASV15000)

<Circuit>

ASV13000



ASV15000



3. Specifications

Model No.	Unit	ASV13000	ASV15000
Fluid		Non-lubricated air	
Port size		Rc1	Rc1 · 1/4
Sonic conductance	dm ³ /(s · bar)	38	42
Critical pressure ratio		0.14	0.1
Effective area (ref.)	mm ²	190	210
Ambient temperature	°C	-5 ~ 50 (Note 1)	
Pressure range	MPa	0 to 0.7	0 to 0.8
Pilot pressure range	MPa	0.3 to 0.7 (Note 2)	0.3 to 0.8 (Note 2)
Max. frequency	Hz	1	
Mass	kg	3.7	8.2

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

Note 2) ASV13000 & 15000 are external pilot operated unit. Therefore, during air blow operation, pilot pressure should be more than 0.3MPa.

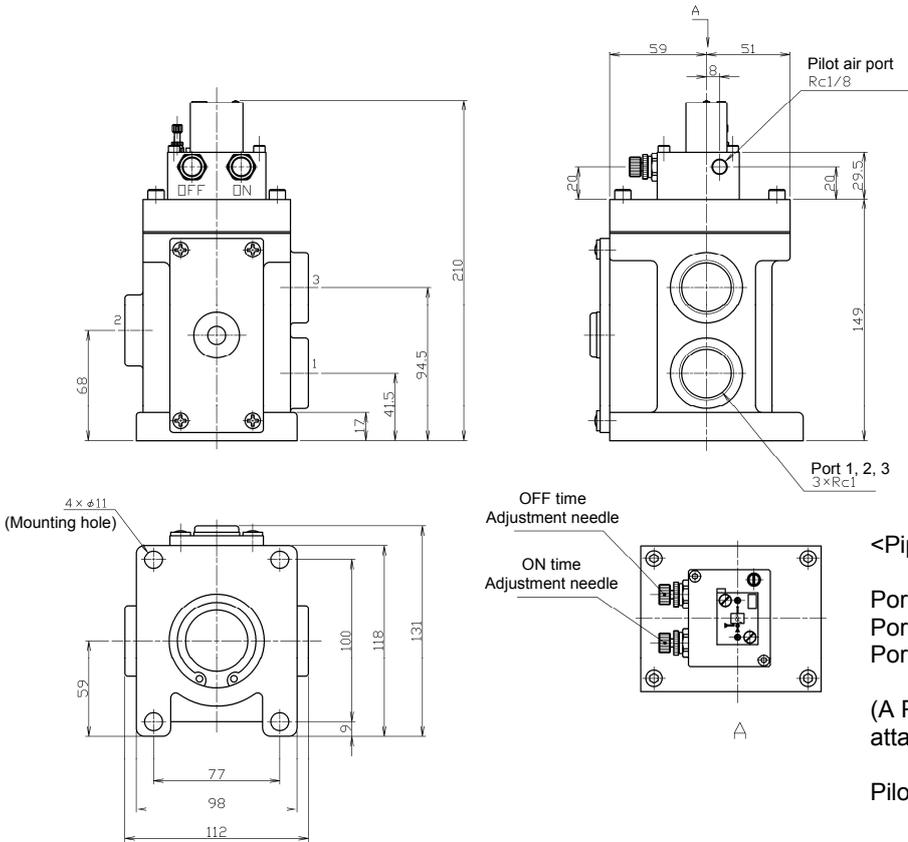
【Important】 Please make sure to supply more than 0.3MPa for pilot air supply port always.

4. Dimensions

Unit (mm)

ASV13000-AA-25A

Important:
Pilot air should be
more than 0.3 MPa.



<Piping>

- Port 1: Supply port (NC) : Rc1
- Port 2: Output port : Rc1
- Port 3: Supply port (NO) : Rc1

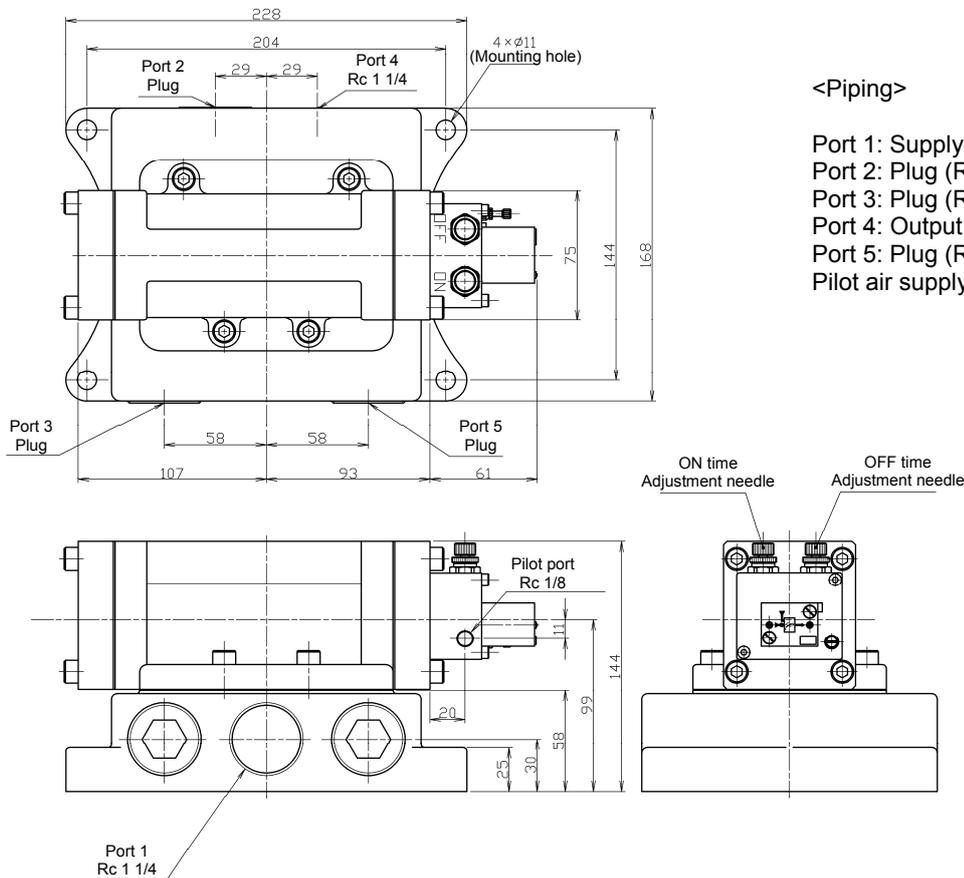
(A Plug with hexagon socket head is attached the product.)

Pilot air supply port: Rc1/8

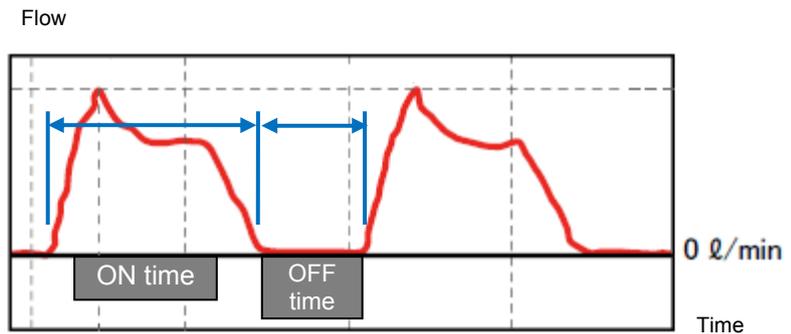
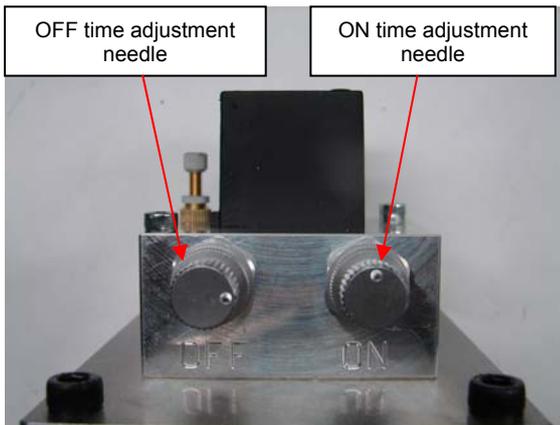
ASV15000-AA-32A

<Piping>

- Port 1: Supply port (NC) : Rc1 1/4
- Port 2: Plug (R1 1/4)
- Port 3: Plug (R1 1/4)
- Port 4: Output port: Rc1 1/4
- Port 5: Plug (R1 1/4)
- Pilot air supply port: Rc1/8



5. How to adjust pulse cycles



Preparation for air supply and how to adjust pulse cycles

- 1) Continuous/Pulse change needle should be fully opened by loosening the needle in CCW direction, and please fix its position by a lock nut. (Shipment condition) When the Continuous/Pulse change needle is fully closed, the main valve position keeps ON condition and does not create pulse blow. During Continuous/Pulse change needle is operated, please make sure not to supply air to the line.



Continuous/Pulse change needle: ON (Continuous blow) OFF (Pulse blow)

- 2) After piping to Air Saver Unit, ON time adjustment needle should be fully closed by screwing the needle CW direction, and OFF adjustment needle should be fully opened by loosening the needle CCW direction while supply air is shut off. There are dots on the screw heads of ON/OFF time adjustment needles. Please use the dots for indication of ON/OFF adjustment.
- 3) If air is supplied to the supply port and pilot supply port of Air Saver Unit, air output to the output port continuously.
- 4) When loosening ON time adjustment needle slowly in CCW direction, pulse blow that have short OFF time start. In order to adjust the duty of ON/OFF time of pulse blow, please loose ON time adjustment needle about 1.5 turns in CCW direction. After that, please close OFF time adjustment needle fully by screwing the needle in CW direction. Then, if OFF time needle is loosen about 2 turns in CCW direction, about 1.5Hz and 50% duty pulsed air blow should be achieved.
- 5) Use the procedure of 4) as a starting point, and make the frequency and duty adjustments that required in your application by loosening/screwing 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 1Hz about Air Saver Unit, ASV13000/15000. If frequency of pulsed air is higher than 1Hz, 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 used, 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.

6. Notes for usage

a) Before piping

Thoroughly flush the inside of each pipe to remove chips, coolant, dust, etc.

b) Air quality

- 1) Fit an air filter with filtration of 5 μ m or finer at the air supply line.
- 2) Be sure to follow proper maintenance procedures of the compressor. Exhaust drain that is separated in filter should be removed regularly.

If drain gets into the compressed air, it may cause malfunction of Air Saver Unit. If it is difficult to make 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 for pilot port. The main valve position is changed 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. Kuroda Pneumatics LTD recommends that the air for the air blow and pilot air should be piped separate source.

d) Stopping the air blow

Be sure to cut air supply to Air Saver Unit when air blow is not used. Air blow come out even when the ON/OFF time adjustment needles are fully tightened.

e) Lubrication

This product does not require lubricated air. Please do not lubricate it.

7. 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.
		Such as dust is caught inside of pneumatic circuit, and it blocks up the flow.	Replace the product.
		Dust 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.

8. 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 Kuroda Pneumatics, Ltd. 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.