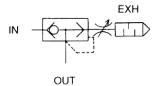


ORIGINAL INSTRUCTIONS

Instruction Manual Speed Exhaust Controller ASV





The intended use of this product is to exhaust residual air.

1 Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of "Caution," "Warning" or "Danger." They are all important notes for safety and must be followed in addition to the relevant International Standards (ISO/IEC) *1), and other safety regulations

(1) ISO 4414: Pneumatic fluid power - General rules relating to systems. ISO 4413: Hydraulic fluid power - General rules relating to systems. IEC 60204-1: Safety of machinery - Electrical equipment of machines. (Part 1: General requirements)

ISO 10218-1: Manipulating industrial robots -Safety.

- Refer to product catalogue, Operation Manual and Handling Precautions for SMC Products for additional information.
- Keep this manual in a safe place for future reference.

▲ Ca	ution	Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
⚠ Wa	rning	Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
⚠ Da		Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

M Warning

- · Always ensure compliance with relevant safety laws and standards.
- All work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.

2 Specifications

2.1 General Specifications

Fluid	Air	
Proof pressure	1.5 MPa	
Port Size	M3,M5,10-32UNF	
	R/NPT 1/8 to 1/2	
Max. operating pressure	1 MPa	
Min. operating pressure	0.1MPa	
Minimum air quality (Note 1)	5 µm filtration or smaller	
Ambient and fluid temperature	-5 to 60°C (No freezing)	
Temperature of medium	-5 to 60°C	
Min. operating frequency	Every 3 days	
Max. operating frequency	1 Hz	
Applicable tubing material (Note 2)	Refer to catalogue	
Impact resistance (Note 3)	1000 m/s ² half sine 6 ms	
Vibration resistance (Note 4)	0.35 mm 10 to 150 Hz	
Flow rate	Refer to catalogue	
	Refer to catalogue	

 Brass components are all electroless nickel plated as standard. (Copperfree and fluorine-free).

2 Specifications - continued

Note 1) Use with air [6:4:4] or better as defined in ISO08573-1:2010. If used with air not satisfying at least the air purity classes [6:4:4] defined in ISO8573-1:2010 Compressed air - Part 1: Contaminants and purity classes, ASV may not exhaust properly, disturbing safe operation of the

Note 2) Use caution when soft nylon and polyurethane tubing is used, with respect to the maximum operating pressure.

Note 3) No malfunction of the valve occurred when two axes (horizontal and vertical) and two directions were tested and (pulse shape: sine shape), 3 times (test sample mounted with bracket). (IEC 60068-2-27:2009)

Note 4) No malfunction occurred in a sweep cycle test from 10 to 150 Hz at a vibration sweep 0.35mm. The test was performed in two axes (horizontal and vertical) and two directions, 7 min per cycle (20 cycles). (IEC 60068-2-6:2007)

Marning

Special products might have specifications different from those shown in this section. Contact SMC for specific drawings.

3 Installation

3.1 Installation

Marning

• Do not install the product unless the safety instructions have been read and understood.

3.2 Environment

Warning

- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- · Do not use in an explosive atmosphere.
- Do not expose to direct sunlight. Use a suitable protective cover.
- . Do not install in a location subject to vibration or impact in excess of the product's specifications.
- Do not mount in a location exposed to radiant heat that would result in temperatures in excess of the product's specifications.
- Do not use in a chemical atmosphere which may deteriorate the

materials used for the components as listed in the catalogue.

- The designer of the system must ensure that the fluid used shall not contain substances that will corrode or swell the materials of the component as listed in the catalogue.
- Do not use in an environment where water may enter the silencer.

3.3 Piping

A Caution

- Make sure that all debris, cutting oil, dust, etc. are removed from the
- · When screwing piping or fittings into ports, ensure that debris from the pipe threads do not enter the piping.
- See the precautions written in the catalogue for handling of one-touch
- Do not use the product in a manner that allows the resin body to rotate constantly as it may damage the resin body or fittings.
- Do not add a moment or any other load to resin body, as it may damage
- · When installing piping or fittings, ensure sealant material does not enter inside the port. When using seal tape, leave 1 thread exposed on the end of the pipe/fitting.

Thread	Proper tightening torque (N•m)
M3	0.4 ~ 1.5
M5	1.0 ~1.5
10-32UNF	
R (NPT) 1/8	7 ~ 9
R (NPT) 1/4	12 ~ 14
R (NPT) 3/8	22 ~ 24
R (NPT) 1/2	28 ~ 30

• It is possible to tighten the lock nut (hexagon) manually. If the nut needs to be fixed more firmly, retighten it with a tool. When using a tool, the nut needs to be tightened to the recommended tightening torque shown in the table below. As a guide, it should be tightened by

3 Installation - continued

15 to 30° with a tool after tightening it manually. Be careful not to damage the lock nut by applying too much torque.

Body size	Proper tightening torque (N•m)	Lock nut width across flats
M3	0.07	5
M5	0.3	7
1/8	1	10
1/4	1.2	12
3/8	2	14
1/2	6	17

- If the installation is as described any of the following cases 1 to 3, the ASV may not exhaust properly, preventing normal operation of the system. In addition, chattering may be caused, resulting in shorter product life
- 1. The solenoid valve's flow path area is smaller than ASV flow path
- 2. The tube length is too long reducing the effective area, or the diameter is too small.
- The tube is crushed or bent.

3.4 Lubrication

A Caution

• SMC products have been lubricated for life at manufacture. Do not lubricate in service.

4 How to Order

Refer to catalogue for 'How to Order'.

5 Outline Dimensions

Refer to catalogue for outline dimensions.

6 Maintenance

6.1 General Maintenance

⚠ Caution

- Not following proper maintenance procedures could cause the product to malfunction and lead to equipment damage.
- If handled improperly, compressed air can be dangerous.
- · Maintenance of pneumatic systems should be performed only by qualified personnel.
- Before performing maintenance, turn off the power supply and be sure to cut off the supply pressure. Confirm that the air is released to
- · After installation and maintenance, apply operating pressure and power to the equipment and perform appropriate functional and leakage tests to make sure the equipment is installed correctly.
- If any electrical connections are disturbed during maintenance, ensure they are reconnected correctly, and safety checks are carried out as required to ensure continued compliance with applicable national regulations.
- Do not make any modification to the product.
- Do not disassemble the product, unless required by installation or maintenance instructions.
- · Check the operation of the actuator and other components at least once a day to make sure they operate properly.
- In the event of a clogged silencer in the system, the exhausting of the actuator or other components may get slower. Replace the ASV or silencer, if the actuator or other components are found not to be operating normally.
- · If used with a clogged silencer continuously the ASV may fail to exhaust

7 Limitations of Use

7.1 Limited warranty and Disclaimer/Compliance Requirements Refer to Handling Precautions for SMC Products and Flow Control.

7 Limitations of Use - continued

A Caution

- Product will not exhaust if differential pressure between IN and OUT side is below minimum operating pressure.
- Due to improper exhaust from the solenoid valve, ASV may not also exhaust properly, leaving residual pressure in the system thus posing a hazard to the operator or maintenance personnel.
- The needle may be loosened due to vibration or impact. Lock the needle with lock nut; otherwise, the cylinder and its operation may change, failing to keep normal operation.
- Tighten the lock nut by hand and then use tooling to further tighten 15°
- Do not overtighten the needle when fully screwed in; otherwise it may be damaged, failing to control actuator speed and exhaust.
- · Take residual pressure into consideration.

The actuator may move during maintenance as a result of residual

- The check valve is designed to close as a result of differential pressure created by the solenoid valve switching between primary (IN) and secondary (OUT) pressure. If primary pressure (IN) drops gently, and the differential pressure is smaller than minimum working pressure or cracking pressure; please be aware that outlet pressure may drop without the check valve closing.
- This product should be used at the discretion of a system designer with sufficient technical knowledge
- The system designer should determine the effect of the possible failure states on the system.
- The valve of this product might open unexpectedly due to the effect of internal leakage or back pressure.
- Differential pressure might affect the closing of the valve.
- Contamination may cause the valve to malfunction.

8 Product disposal

This product should not be disposed of as municipal waste. Check your local regulations and guidelines to dispose this product correctly, in order to reduce the impact on human health and the environment.

9 Contacts

Refer to www.smcworld.com for local distributors/importers.

SMC Corporation

URL: http://www.smcworld.com (Global) http://www.smceu.com (Europe) 'SMC Corporation, Akihabara UDX15F, 4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101

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