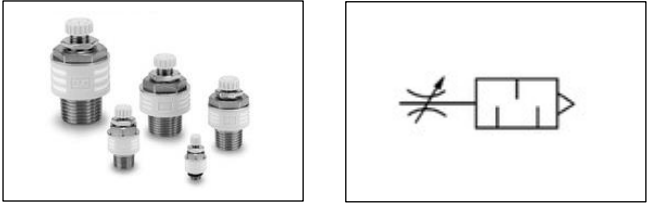




Instruction Manual
Metering Valve with Silencer
Series ASN2



The intended use of the ASN2 is to easily set and control the speed of a cylinder while providing a sound reducing performance.

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 International Standards (ISO/IEC)^{*)}, and other safety regulations.
^{*)} 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. etc.

- 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.

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

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

Fluid	Air ^{Note1}
Proof pressure	1.5 MPa
Operating pressure range	0 to 1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Temperature of medium	-5 to 60°C
Impact resistance ^{Note2}	1000 m/s ² half sine 6 ms
Vibration resistance ^{Note3}	0.35 mm 10 to 150 Hz

* Brass components are all electroless nickel plated as standard (Copper-free and fluorine-free)

Model	Port size	Sonic Conductance	Critical pressure ratio	Weight (g)
ASN-M5	M5 x 0.8	0.36	0.15	5
ASN2-U10/32	10-32 UNF	0.36		5
ASN2-01	1/8	0.72	0.35	17
ASN2-02	¼	1.3		34
ASN2-03	3/8	3.32		55
ASN2-04	1/2	4.9		107

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, ASN2 may not exhaust properly, disturbing safe operation of the system.

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

Note 3) 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)

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

Warning

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

3 Installation

3.1 Installation

Warning

- Do not install the product unless the safety instructions have been read and understood.
- If installing flow controls to valve ports, interference may occur with the fittings. Please consult the catalogue before installing.
- Allow enough space for maintenance and inspection.
- Confirm the lock nut is tight. If the lock nut is not tight, changes in the actuator speed may occur.
- Check the number of opening and closing rotations of the needle valve. It is not possible to remove the needle valve completely, over rotation will cause damage to the product.

- Do not use tools such as pliers to rotate the handle. If the knob is excessively rotated, it may cause damage.
- To adjust the speed, start with the needle in the close position and then adjust by opening gradually. When the needle valve is opened, the actuator may move suddenly. When the needle valve is turned clockwise (closed) the cylinder speed decreases and turning the needle valve counterclockwise (opened) the cylinder speed increases.
- Do not apply excessive force or shock to the body with an impact tool. This can cause damage or air leakage.
- Ensure there is no unauthorized adjustment of the throttle.

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 listed in the catalogue.
- Do not use in an environment where water may enter the silencer.

3.3 Piping

Caution

- Before connecting piping make sure to clean up chips, cutting oil, dust etc.
- 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.

3 Installation - continued

- 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 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
¼	1.2	12
3/8	2	14
1/2	6	17

3.4 Lubrication

Caution

- SMC products have been lubricated for life at manufacture, and do not require lubrication in service.
- If a lubricant is used in the system, refer to catalogue for details.

4 How to Order

Refer to catalogue for 'How to Order'.

5 Outline Dimensions (mm)

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 atmosphere.
- 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 of ASN2 in the system, the exhausting of the actuator or other components may get slower. Replace the ASN2, if the actuator or other components are found not to be operating normally.
- If used with a clogged silencer of ASN2 continuously. The ASN2 may fail to exhaust.

6 Maintenance - continued

Warning

- Maintenance should be performed according to the procedure indicated in the Operation Manual

7 Limitations of Use

7.1 Limited warranty and Disclaimer/Compliance Requirements

Refer to Handling Precautions for SMC Products and Flow Control Equipment Precautions.

Warning

It is a user responsibility to ensure there is no possibility of unauthorized adjustment of the throttle.

Caution

- The product cannot be used as a stop valve to achieve zero leakage. A certain amount of leakage is allowed in the product's specification. Tightening the needle to achieve zero leakage may result in equipment damage.
- 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.
- 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.

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 or www.smc.eu for contacts.

SMC Corporation

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