

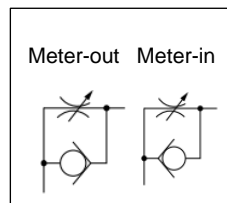


ORIGINAL INSTRUCTIONS

Instruction Manual

Stainless Steel Speed Controller

ASG Series



The intended use of this product is to control the airflow into and out of a cylinder to adjust the cylinder speed.

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)⁽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: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots.

- 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

2.1 General specifications

| | |
|---|---------------------------|
| Fluid | Air |
| Proof pressure [MPa] | 1.5 |
| Max operating pressure [MPa] | 1.0 |
| Min. operating pressure [MPa] | 0.1 |
| Min. air quality ^{Note 1)} | 5 µm filtration or higher |
| Ambient and operating temperature [°C] | 0 to 150 (No freezing) |
| Flow rate | Refer to online catalogue |
| Applicable tube material ^{Note 2)} | Refer to online catalogue |
| Impact resistance [m/s ²] ^{Note 3)} | 1000 |
| Vibration resistance [m/s ²] ^{Note 4)} | 50 (0.35mm) |

Table 1.

Note 1) Use with air [6:4:4] or better as defined in ISO8573-1:2010.

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 sinusoidal, 3 times (test sample mounted with bracket) (IEC 60068-2-27:2009)

2 Specifications – continued

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)

Warning

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

2.2 Flow Rate and Sonic Conductance

Refer to catalogue on www.smcworld.com for flow rate and sonic conductance.

2.3 Functional description

The needle valve is closed by turning clockwise and opened by turning anticlockwise. Therefore, the actuator speed is reduced by turning clockwise and increased by turning anticlockwise.

2.4 Design / selection

Warning

Check the specifications.

- These products are designed to be used in compressed air system only.
- If the products are used in an environment where pressure or temperature is out of the specified range, damage and/or malfunction may result. Do not use under such conditions.
- Please contact SMC when using a fluid other than compressed air (including vacuum).
- We do not guarantee against a damage if the product is used outside of the specification range.
- The products in this catalogue are not designed for the use as stop valve with zero air leakage. A certain amount of leakage is allowed in the product's specifications. Tightening the needle to reduce leakage to zero may result in equipment damage.
- The flow rate characteristics for each product are representative values. The flow rate characteristics are characteristics of each individual product. Actual values may differ depending on the piping,

circuitry, pressure conditions, etc.

- Sonic conductance (C) and critical pressure ratio (b) values for products are representative values. The speed controller's-controlled flow values are with the needle fully open and free flow with the needle fully closed.
- Check if PTFE can be used in application. PTFE powder (Polytetrafluoroethylene resin) is included in the seal material for piping taper thread of male thread type. Confirm that the use of it will not cause any adverse effect on the system. Please contact SMC if the Material Safety Data Sheet (MSDS) is required.

3 Installation

3.1 Installation

Warning

- 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.

- 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 2-3 thread exposed on the end of the pipe/fitting.
- Tighten fittings to the specified tightening torque.

3 Installation - continued

| Connection thread (R, NPT, G) | Tightening torque [N·m] |
|-------------------------------|-------------------------|
| M5, 10-32UNF | 1 to 1.5 |
| 1/8 | 3 to 5 |
| 1/4 | 8 to 12 |
| 3/8 | 15 to 20 |
| 1/2 | 20 to 25 |

Table 2.

3.3 Lubrication

Caution

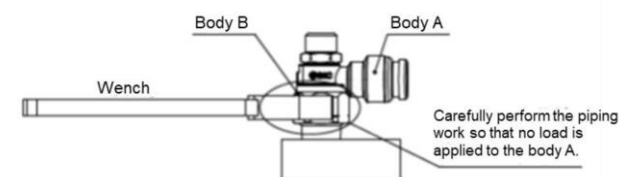
- SMC products have been lubricated for life at manufacture, and do not require lubrication in service.
- If a lubricant is used in the system, refer to catalogue for details.

3.4 Mounting

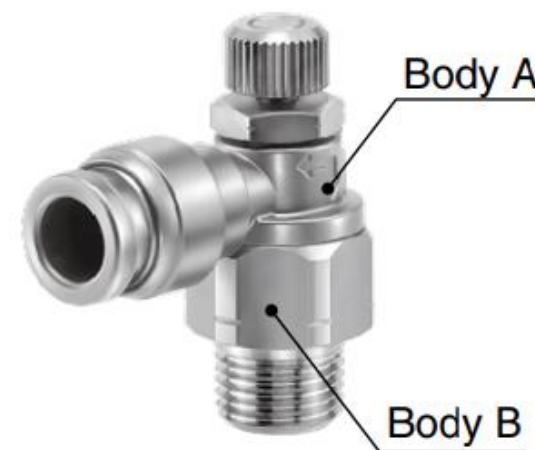
Refer to catalogue for details.

Caution

- When performing the piping work, turn the tightening tool in the horizontal direction to the hexagon across flats of the body B so that any moment is not applied to the body A. If the tool is in contact with the body A, this may cause the body B to come off.
- Ensure sufficient space for maintenance activities. When installing the products, allow access for maintenance.
- Do not use tools such as pliers to rotate the knob. It can cause idle rotation of the knob or damage.
- Do not apply excessive force or shock to the body or fittings with an impact tool. It can cause damage or air leakage.



- Verify the air flow direction. Mounting backward is dangerous, because the speed adjustment needle will not work, and the actuator may lurch suddenly.
- To install/remove the product, use an appropriate wrench to tighten/loosen at the supplied nut on body B. Do not apply torque at other points as the product may be damaged. Rotate body A manually for positioning after installation.



- Do not use body A and/or elbow body for applications involving continuous rotation. Body A and the fitting section may be damaged.

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 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.

7 Limitations of Use

7.1 Limited warranty and disclaimer/compliance requirements

Refer to Handling Precautions for SMC Products.

8 Product Disposal

This product shall 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 your local distributor/importer.

SMC Corporation

URL : <https://www.smcworld.com> (Global) <https://www.smc.eu> (Europe)
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Specifications are subject to change without prior notice from the manufacturer.
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