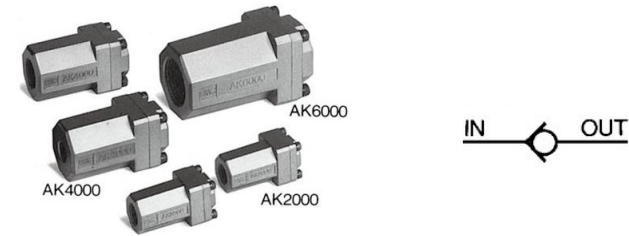


SMC®

Instruction Manual

Check Valve

AK series



The intended use of this product is to control the direction of flow of compressed 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 International Standards (ISO/IEC) <sup>\*)</sup>, and other safety regulations.  
<sup>\*)</sup> 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.

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

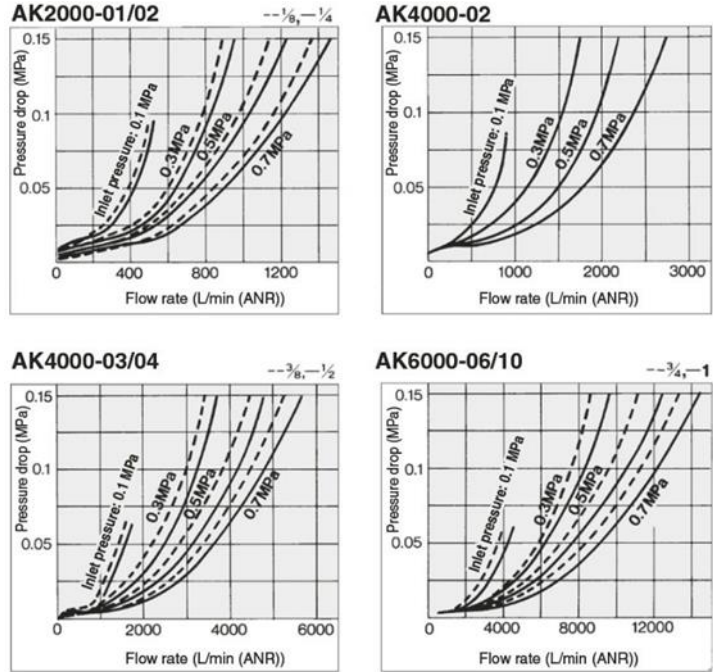
Fluid	Air
Proof Pressure	1.5 MPa
Maximum operating pressure	1 MPa
Minimum operating pressure	0.02 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)

Flow Data

Model	Port size	Sonic conductance dm³/(s·bar)	Critical pressure ratio
AK2000-01	1/8	5	0.25
AK2000-02	1/4	5.5	
AK4000-02	1/4	9.4	
AK4000-03	3/8	17	
AK4000-04	1/2	19	
AK6000-06	3/4	40	
AK6000-10	1	46	

2 Specifications - continued

Flow Characteristics



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
- Air quality required is 5 µm.

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

Rc,NPT thread

Thread	1/8	1/4	3/8	1/2	3/4	1
Proper tightening torque N·m	3 to 5	8 to 12	14 to 16	20 to 22	28 to 30	36 to 38

G thread

Thread	1/8	1/4	3/8	1/2	3/4	1
Proper tightening torque N·m	3 to 4	4 to 5	8 to 9	14 to 15	28 to 30	36 to 38

3.4 Lubrication

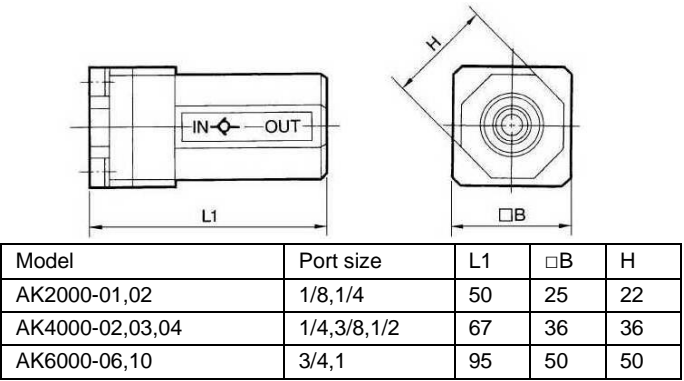
**Caution**

- 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 drawings/catalogue for ‘How to Order’.

5 Outline Dimensions (mm)



Model	Port size	L1	□B	H
AK2000-01,02	1/8,1/4	50	25	22
AK4000-02,03,04	1/4,3/8,1/2	67	36	36
AK6000-06,10	3/4,1	95	50	50

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.

**Caution**

- **Even when used within the specification range, the check valve may oscillate and not fully open when the check valve inlet is restricted.**
- **The minimum working pressure is the pressure at the point when the valve begins to open, not the pressure level when the valve is fully open.**
- **Take residual pressure into consideration.**  
The actuator may move during maintenance as a result of residual pressure.
- **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.**

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](http://www.smcworld.com) or [www.smc.eu](http://www.smc.eu) for contacts.

SMC Corporation

URL : [http:// www.smcworld.com](http://www.smcworld.com) (Global) [http// www.smceu.com](http:// www.smceu.com) (Europe)  
'SMC Corporation, Akihabara UDX15F, 4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101 0021  
Specifications are subject to change without prior notice from the manufacturer.  
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