

Instruction Manual

AND Valve with One-touch Fittings

Series VR1211F






The intended use of this product is to control pneumatic signal lines.

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

2.1 Specifications

Valve type	AND-Valve
Fluid	Air
Min. operation pressure	0.05 MPa
Max. operation pressure	1.0 MPa
Ambient and fluid temperature	-5 to +60 °C (No freezing)
Min. air quality	5 µm
Proof pressure	1.5 MPa
Min. operating frequency	1 cycle / 30 days
Max. operating frequency	120 times/ minute
Lubrication	Not required
Applicable tubing material ^(Note 1)	Nylon, Soft nylon, Polyurethane
Shock resistance ^{Note 2)}	1000 m/s ²
Vibration resistance ^{Note 3)}	50 m/s ²

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

Note 1) Use caution when soft nylon and polyurethane is used in the maximum operating pressure.

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)


Note 3) No malfunction occurred in a sweep cycle test between 10 to 150 Hz at vibration sweep 0.35mm. The test was performed in the two axes and two directions, 7 min per cycle (20 cycles)

2.2 Weight

Model	Weight (g)	Model	Weight (g)
VR1211F-23	26.4	VR1211F-01	26.4
VR1211F-04	20.8	VR1211F-03	20.8
VR1211F-06	25.0	VR1211F-07	27.0


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.

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.
- Tighten fittings to the specified tightening torque.

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 Settings

Only when air is supplied to both P₁ and P₂ does air flow to the OUT side. When air pressure differs, lower pressure flows to the OUT side.

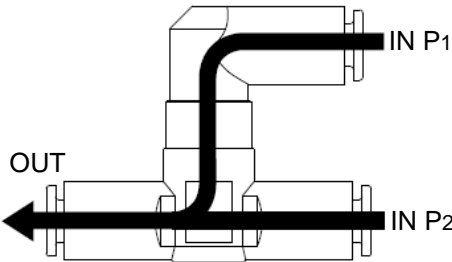
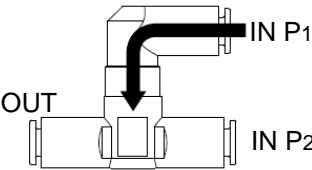
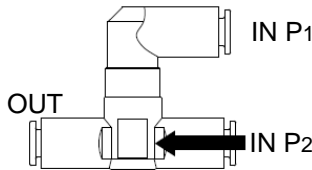


Figure 1

If air is supplied only to either P₁ or P₂, it does not flow to the OUT side.
NOTE: Air may flow to the OUT side for a moment until the valve switches (for about 1/100s). If there is any effect on the connected equipment due to the above air flow, install a speed controller or other equipment on the OUT side and adjust to prevent this effect before use.



5 How to Order


Refer to catalogue for ‘How to Order’.

6 Outline Dimensions (mm)

Refer to catalogue for outline dimensions.

7 Maintenance

7.1 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.

8 Limitations of Use

8.1 Limited warranty and Disclaimer/Compliance Requirements

Refer to Handling Precautions for SMC Products.

9 Contacts

Refer to catalogue and www.smcworld.com for contacts.

SMC Corporation

URL : [http:// www.smcworld.com](http://www.smcworld.com) (Global) <http:// www.smceu.com> (Europe)
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