INSTRUCTION MANUAL OF MPV3 SWITCHING VALVE

Read the instruction manual without fail before using the switching valve and keep the manual with care.

WARNING

1. Use this model for a suction- transfer with a vacuum pump.
2. Provide a mechanical fall preventive in case danger may occur due to a drop of sucked work(sucked objects).
3. Avoid use of the switching valve in locations where corrosive or inflammable gases exists.

CAUTION

■ Caution of piping

1. In case more than one pad is used with a MPV3 Even leakage of one pad makes the vacuum degree drop and leads to the drops of the other pads, resulting in a miscarriage of suction. (The vacuum degree drops without suction of any pads.)
2. Do not supply any compressed air to the VP or the V port.
3. Use seal tapes or sealing matrix in 2 ridges apart from the edge of the thread so that the seals or the tapes may not stretch out into the pipes or the machines to avoid the air leakage or the malfunctions.
4. Use a horse with a larger diameter and with a shorter length in case of the use of more than a MPV3. Install an air tank and a regulator if required.
5. In case of coupling a V port of a pad and a horse, use a fitting with a side of 12 or less (an outer diameter 13 or less) in a clamping place. Use as short a piping as possible to avoid the leakage.

■ Caution of operation

1. Operate MPV3 within the temperature range of 5-50 degree Celsius.
2. Compressed air contains a lot of impurities (water, oxidized oil, tar, and foreign particles). This may cause deterioration of the functions of the MPV. Improve the air quality by dehumidifying with after-coolers or dryers and also remove tar with tar removing filters. Do not use lubricators.
3. Rust in pipes could cause the malfunction. Insert an air pressure filter with a 5 micro or less filtration right in the front of the supply port of compressed air of MPV3.
4. Operate a solenoid valve within a 10% fluctuation of a rating voltage.
5. Avoid use of the switching valve with a vibration of 30 m/sec-square or over, a shock of 150m/sec-square or over.
6. Install the switching valve as apart as possible from high-pressure equipment, high-tension cables or power cables that may emit noises.
7. Water droplets spattered directly on the solenoid valve could cause short circuits or coil burnouts. Protect the valve with a cover or by installing it inside a panel.
8. Moisture, oil, salinity, metal chips or the like cause deteriorations of the functions. Avoid suction of these materials.
9. Use a tank or a vacuum decrease valve to stabilize a vacuum supply pressure.

■ Caution of maintenance

1. Switch off power without fail when disassembling or changing components is performed.
2. Assembling or disassembling MPV3 should be performed by trained people.
3. Do not lose components when assembling or disassembling.
4. When disassembling, wear a goggle for protection. Spring parts could jump out of the equipment.
5. Standard clamping torques of installing each screw are M1.7: 0.05Nm / M2.5: 0.16Nm / M3: 0.59Nm
6. It is essential that filter elements be periodically cleaned or exchanged if necessary because of clogging of impurities like water, oil, salinity, metal chips or the like , which may lead to drops of a vacuum degree and air consumption.

■ Accessories

Model	Name of accessories	Measurement	Quantity
Single uni	Cross recessed pan head screw	M3× 25+W+SW	2

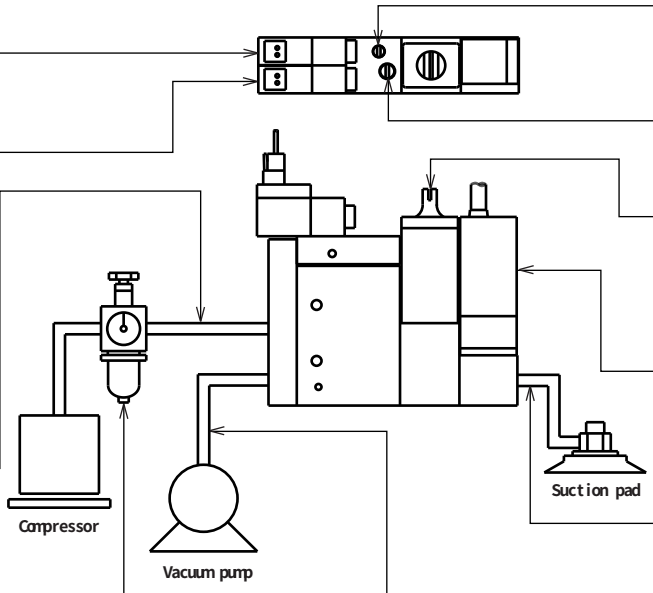
■ Operation(◎ function,○ caution)

Vacuum break control solenoid valve
◎ This is a solenoid valve to release the work completely.
(Vacuum is generated when the solenoid valve is switched on: 60 l/min(ANR) [0.5 MPa-supply air pressure])

Vacuum control solenoid valve
◎ This is a solenoid valve to control a vacuum valve.
a. Supply air passage condition with normally open:
The vacuum is generated when the solenoid valve is switched off and stops when the solenoid valve is switched on.
b. Supply air passage condition with normally close:
The vacuum is generated when the solenoid valve is switched on and stops when the solenoid valve is switched off.
○ Prevent dirt, miniature particles and the like from getting into the solenoid valve using a small sized 3-port valve. That may cause malfunctions.

Compressed air supply piping (P)
○ An inner diameter of a hose is 4 m or over. (Use a size larger hose when the length of the piping exceeds 2 m)
○ A smaller sized hose could cause a drop of air pressure and a shortage of air flow , resulting in malfunctions.

Filter regulator
○ Set an operating air pressure at 0.3-0.5 MPa.
○ Drain a filter from time to time.(in particular, drain it more frequently while it is a high humidity's season.)
○ Do not use a lubricator.



Break flow control needle
◎ Turn right to decrease air flow and turn left to increase the flow.

Vacuum flow control needle
◎ Turn right to decrease air flow and turn left to increase the flow.

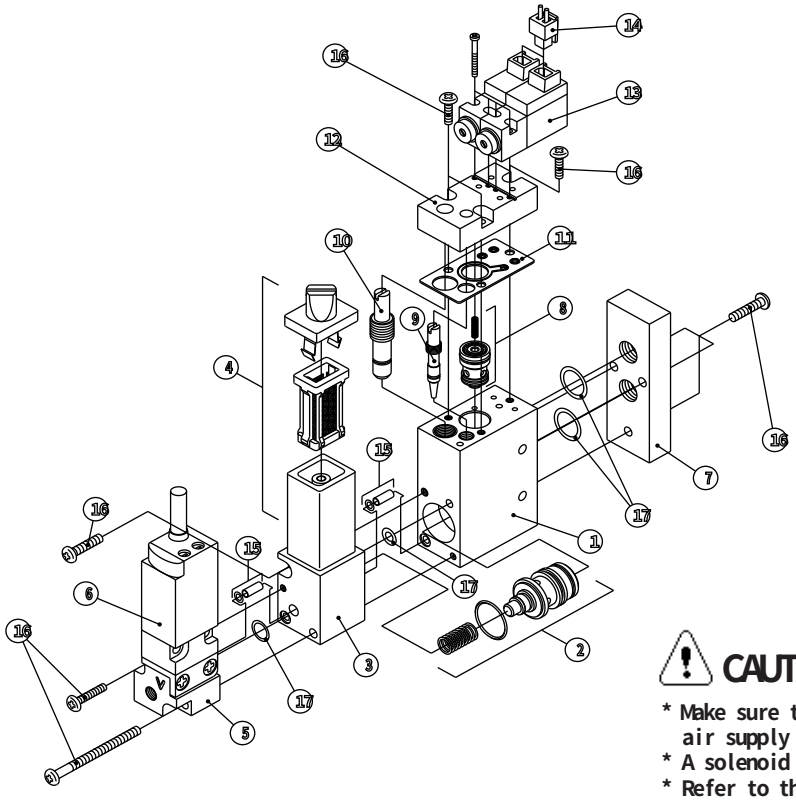
Filter
◎ This is to prevent miniature particles sucked by a pad from getting into a MPV3.
○ It is essential that a filter be maintained by periodical inspecting, cleaning or replacing it because a filter is clogged with liquids like oil, water or impurities passing through it.

Vacuum sensor
◎ A sensor starts to operate when the vacuum has reached to the set vacuum degree.
○ Read the instruction manual of vacuum sensor before using it.

Vacuum side piping (V)
○ An inner diameter of a hose is 4 m or over. (Use a size larger hose in case the length of the hose exceeds 2 m.)
○ A smaller sized hose may cause a drop of air pressure or a shortage of air flow, resulting in malfunctions.

Vacuum supply side piping (VP)
○ Use a hose by considering an effective cross sectional area of the horse or the fitting.
○ Stabilize vacuum pressure by installing a tank or a vacuum decrease valve.

■ Exploded View



■ Name of parts

1	Main body
2	Poppet kit for vacuum control
3	Filter base
4	Filter unit
5	Sensor base
6	Vacuum sensor
7	Single unit base (not applicable to a manifold type)
8	Poppet kit for vacuum break
9	Break flow control needle
10	Vacuum flow control needle
11	Upper plate gasket
12	Upper plate
13	Solenoid valve
14	Connector for solenoid valve
15	Cross wire kit
16	Small pan head screw
17	O ring

⚠ CAUTION

* Make sure that air leakage or the like never occur at the sides of air supply and vacuum.
* A solenoid valve should be wired corresponding to the specifications.
* Refer to the catalogue in the specifications and the measurements.

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