

INSTRUCTION MANUAL FOR CVF-1 CONVUM

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

WARNING

1. Install a mechanical preventive for safety against unexpected drops of sucked work pieces, if dangerous.
2. Avoid to use of the CONVUM in locations where corrosive or inflammable gases exists. No suction of such gases by all means.

CAUTION

■ Caution of piping

1. In case more than two pads are used with one CONVUM
 - Leakage even by one pad lowers the vacuum condition, which causes suction error.
 - For vacuum piping, use a pipe for between CONVUM and a branch unit with a larger diameter than that for between a branch unit and pads.
2. Use a pipe with larger diameter than specified. In case too small diameter pipes are used for vacuum piping, the vacuum degree inside CONVUM could increase, which resulting in keeping the vacuum sensor hold ON.

■ Caution of operation

1. Operating temperature of CONVUM is 0 degree C to 60 degree C, no use out of the temperature conditions. (may cause troubles when frozen).
2. Compressed air contains a lot of impurities (water, oxidized oil, tar, and foreign particles). This may cause deterioration of the functions of the CONVUM. 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 CONVUM.
4. Operate a solenoid valve within a 10% fluctuation of a rating voltage.
5. Avoid use of the CONVUM with a vibration of 49 m/sec-square or more, a shock of 294 m/sec-square or more.
6. Install the CONVUM as apart as possible from high-pressure equipment, high-voltage 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 CONVUM with a cover or by installing inside a panel.
8. Moisture, oil, salinity, metal chips or the like cause deteriorations of the functions. Avoid suction of these materials.

■ Caution of maintenance

1. Switch off power without fail when disassembling or changing components is performed.
2. Assembling or disassembling 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. When the length of a vacuum piping is 1.5m or more, take time more vacuum generating and vacuum breaking respectively.
6. Standard clamping torques of installing each screw are M3 : 0.59N·m / M4 : 1.37N·m.

■As for vacuum sensors, refer to the instruction manual as per separate sheets.

■ Accessories

MODEL	PART NAME	MATERIAL SIZE	Q' TY
CVF-1 series	Screw	M4×30 with flat-spring washer	2

Operation (⊙function, ○caution)

Solenoid valve
 ⊙Control vacuum generation (Normally, 3 ports valve is used to switch ON/OFF of vacuum generation).
 ○CVF-1 specified air pressure/flow volume be secured (Be careful for effective section area).

Filter regulator
 ○Be sure to keep the specified pressure and rate of air-flow stable.
 ○The setting of pressure shall be made by taking into account the pressure drop at vacuum generating, because the specified pressure (0.35/0.5MPa) required for CONVUM is the valve at inlet of CONVUM when generating the vacuum.
 ○Filter should be drained periodically (Be sure to drain frequently especially when air humidity is high.)
 ○Never use a lubricator.

To other pneumatic equipments
 ○Be sure to keep air actuator and CONVUM as close to the air-supply (compressor) as possible.

Compressor
 ○Pressure supplied by compressor should be good enough to cover the whole quantity of consumption of all pneumatic devices including CONVUM.

Air cylinder

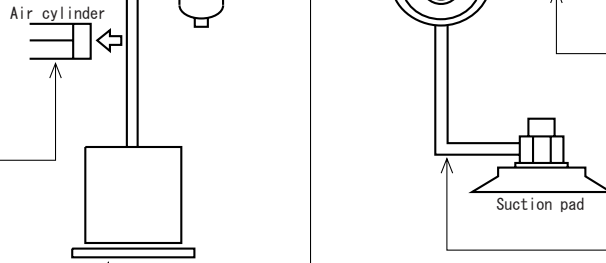
Filter
 ⊙Prevents foreign particles which is suctioned from pad into the inside of CONVUM.
 ○Periodical cleaning is required at appropriate interval since passage of oil mist, moisture and other fluid or contaminants may choke the filter and lower efficiency.
 ○After cleaning element, attach the filter cap under vacuum generation.

Supply side piping
 ○Inside diameter of hose at air-supply side...φ4mm or more (In case the length of hose exceeds 2m, use hose with one size larger inside diameter)
 ○Inner diameter of hose and joints smaller than specified may cause the pressuredrop or insufficient flow, which may decrease the vacuum performance and malfunction.

Silencer
 ⊙Decrease air noise of exhaust from the CONVUM.
 ○Regular maintenance should be executed periodically. It will lower the vacuum performance if silencer clogged by oil, mist, dust etc.

Pressure sensor (Option)
 ⊙Turns on the sensor when vacuum reaches set-up vacuum degree.
 ○Vacuum sensors, mechanical switch or pressure sensors can be installed (Be sure to refer to Operation Manual of vacuum sensor for details before usage.)

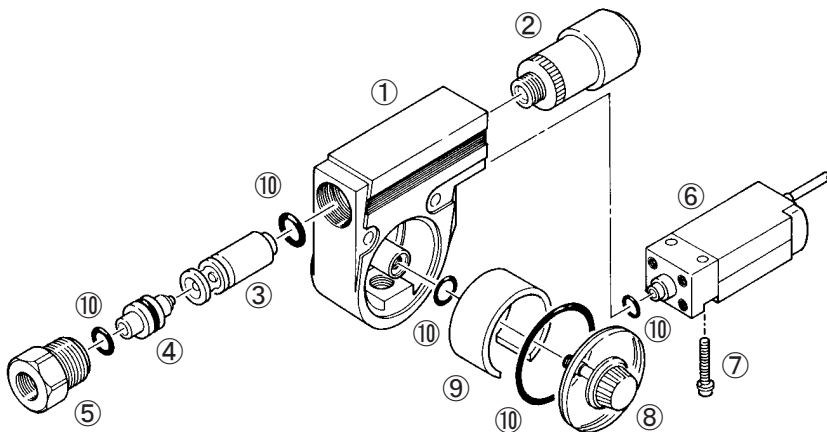
Vacuum piping
 ○Inside diameter of hose at vacuum side...φ4 mm or more (A hose with larger diameter is recommended if length of the hose being used exceeds 2m)
 ○Avoid elbow joints as much as possible.
 ○Air flow pressure will be reduced if hose diameter is less than specified, and it lowers vacuum performance.



CAUTION

- * There must be no air leakage in the pipings of both the supply air side and the vacuum side.
- * The wiring for the solenoid valves must be in accordance with the specifications.
- * Please refer to catalog as for specifications and outer dimensions.

Exploded View



●Description
1 Body
2 Silencer
3 Diffuser
4 Nozzle
5 Supply Socket
6 Vacuum Sensor (MVS Series)
7 Setting Screw
8 Filter Cap
9 Filter Element
10 O ring

CAUTION

- * Before carrying out disassembly or replacing a part, be sure to cut power supply and air source.
- * Disassembling/assembly should be carried out strictly by a person having professional knowledge.
- * Do not lose any part while in assembling/disassembling work. Otherwise, appropriate performance can not be warranted.
- * As a spring part may fly out during disassembling work, etc., be sure to wear protective glasses.

CONVUM
<http://www.convum.co.jp>

INSTRUCTION MANUAL FOR CVF-2 CONVUM

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

WARNING

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2. Avoid to use of the CONVUM in locations where corrosive or inflammable gases exists. No suction of such gases by all means.

CAUTION

■ Caution of piping

1. In case more than two pads are used with one CONVUM
 - Leakage even by one pad lowers the vacuum condition, which causes suction error.
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■ Caution of operation

1. Operating temperature of CONVUM is 0 degree C to 60 degree C, no use out of the temperature conditions. (may cause troubles when frozen).
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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 CONVUM.
4. Operate a solenoid valve within a 10% fluctuation of a rating voltage.
5. Avoid use of the CONVUM with a vibration of 49 m/sec-square or more, a shock of 294 m/sec-square or more.
6. Install the CONVUM as apart as possible from high-pressure equipment, high-voltage 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 CONVUM with a cover or by installing inside a panel.
8. Moisture, oil, salinity, metal chips or the like cause deteriorations of the functions. Avoid suction of these materials.

■ Caution of maintenance

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2. Assembling or disassembling should be performed by trained people.
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4. When disassembling, wear a goggle for protection. Spring parts could jump out of the equipment.
5. When the length of a vacuum piping is 1.5m or more, take time more vacuum generating and vacuum breaking respectively.
6. Standard clamping torques of installing each screw are M3 : 0.59N·m / M4 : 1.37N·m.

■ As for vacuum sensors, refer to the instruction manual as per separate sheets.

■ Accessories

MODEL	PART NAME	MATERIAL SIZE	Q' TY
CVF-2 series	Screw	M4×30 with flat-spring washer	2

Operation (⊙function, ○caution)

Supply side piping

- Inside diameter of hose at air-supply side... ϕ 4mm or more (In case the length of hose exceeds 2m, use hose with one size larger inside diameter)
- Inner diameter of hose and joints smaller than specified may cause the pressuredrop or insufficient flow, which may decrease the vacuum performance and malfunction.

Filter regulator

- Be sure to keep the specified pressure and rate of air-flow stable.
- The setting of pressure shall be made by taking into account the pressure drop at vacuum generating, because the specified pressure (0.35/0.5MPa) required for CONVUM is the valve at inlet of CONVUM when generating the vacuum.
- Filter should be drained periodically (Be sure to drain frequently especially when air humidity is high.)
- Never use a lubricator.

To other pneumatic equipments

- Be sure to keep air actuator and CONVUM as close to the air-supply (compressor) as possible.

Compressor

- Pressure supplied by compressor should be good enough to cover the whole quantity of consumption of all pneumatic devices including CONVUM.

Air cylinder

Filter

- ⊙ Prevents foreign particles which is suctioned from pad into the inside of CONVUM.
- Periodical cleaning is required at appropriate interval since passage of oil mist, moisture and other fluid or contaminants may choke the filter and lower efficiency.
- After cleaning element, attach the filter cap under vacuum generation.

Vacuum-generating solenoid valve

- ⊙ This solenoid valve controls vacuum generation.
- a. Supply air passage condition (Normally open) : Vacuum generating is started when AC power supply is switched off and is stopped when it is switched on.
- b. Supply air passage condition (Normally closed) : Stops vacuum generation when switched off, generates when switched on.
- Since using small-type 5 ports solenoid valve, the dust inserted causes malfunction.

Silencer

- ⊙ Decrease air noise of exhaust from the CONVUM.
- Regular maintenance should be executed periodically. It will lower the vacuum performance if silencer clogged by oil, mist, dust etc.

Pressure sensor (Option)

- ⊙ Turns on the sensor when vacuum reaches set-up vacuum degree.
- Vacuum sensors, mechanical switch or pressure sensors can be installed (Be sure to refer to Operation Manual of vacuum sensor for details before usage.)

Suction pad

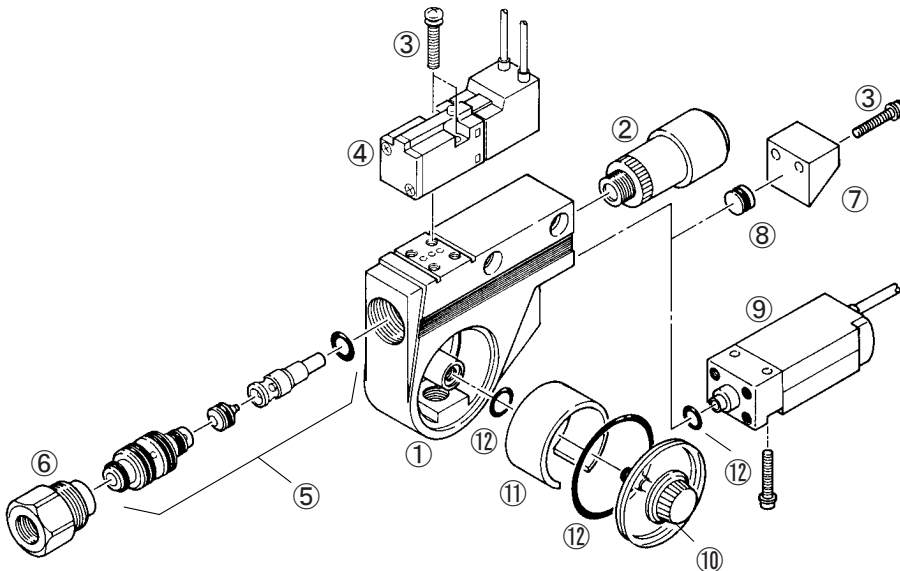
Vacuum piping

- Inside diameter of hose at vacuum side... ϕ 4 mm or more (A hose with larger diameter is recommended if length of the hose being used exceeds 2m)
- Avoid elbow joints as much as possible.
- Air flow pressure will be reduced if hose diameter is less than specified, and it lowers vacuum performance.

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Exploded View



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1 Body
2 Silencer
3 Setting Screw
4 Vacuum Control Solenoid Valve
5 Nozzle Kit
6 Supply Socket
7 Seal Block
8 Seal Spacer
9 Vacuum Sensor (MVS Series)
10 Filter Cap
11 Filter Element
12 O ring

CAUTION

- * Before carrying out disassembly or replacing a part, be sure to cut power supply and air source.
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