

INSTRUCTION MANUAL OF CV CONUM

Read the instruction manual by all means before using the CONUM 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 CONUM in locations where corrosive or inflammable gases exists. No suction of such gases by all means.

⚠ CAUTION

Caution of piping

In case more than two pads are used with one CONUM

Leakage even by one pad lowers the vacuum condition, which causes suction error.

For vacuum piping, use a pipe for between CONUM and a branch unit with a larger diameter than that for between a branch unit and pads. Use a pipe with larger diameter than specified. In case too small diameter pipes are used for vacuum piping, the vacuum degree inside CONUM could increase, which resulting in keeping the vacuum sensor hold ON.

Caution of operation

Operating temperature range for CONUM is 0 to 60 , no use out of the range. (may cause troubles under frozen).

Compressed air contains a lot of impurities (water, oxidized oil, tar, and foreign particles). This may cause deterioration of the functions of the CONUM. Improve the air quality by dehumidifying with after-coolers or dryers and also remove tar with tar removing filters. Do not use lubricators.

Rust in piping may cause the malfunction. Install a compressed air filter specified for 5 micro or less filtration close to the supply port of compressed air of CONUM.

Operate a vacuum switch (CK type) within the range of rating electric voltage and current.

Mixture, oil, salinity, metal chips etc. may cause deteriorations in functions. Avoid suction of those materials.

Caution of maintenance

Switch off power without fail when disassembling or changing components.

Assembling or disassembling should be done by trained personnel.

Do not lose components when assembling or disassembling.

When disassembling, take a goggle for protection. Spring parts may jump out of the equipment.

When the length of a vacuum piping is 1.5m or more, take time more vacuum generating and vacuum breaking respectively.

Standard clamping torques of installing each screw are MB: 0.59N·m

Accessories : None

Vacuum switch operation methods. (piston type micro switch)

⚠ CAUTION

No protection against water or oil. Not install to the place where the splash of water or oil be anticipated.

Electrical caution

- a) The performance of open/close by contactor is in big difference between AC current and DC current. Check rating voltage and load current.
- b) Big difference may cause between electric current and in-rush- current subject to load current. Operate within allowable in- rush- current value (10A). At closed circuit, larger in-rush-current causes larger increase of wear consumption and removal of contactor, by which causes unable release of contactor by welded and removal of contactor.
- c) In case induced current is included, back electromotive force is generated and the energy is larger with higher voltage and the wear consumption and removal of contactor increase. Rating conditions must be confirmed.

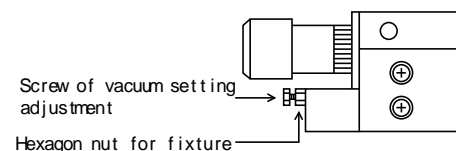
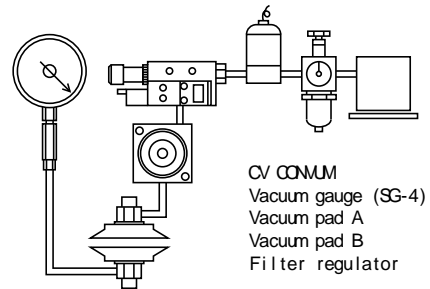
Micro switch rating

Supply voltage	Load current	Resistance (A)	Induced (A)
A C	125	5	3
	250	3	2
D C	30	4	3

Adjustment for setting value of vacuum.

At ex-factory, the value is set for -46.6kPa to switch ON. If other set value is desired to switch ON, adjust as following manner. (Adjustable range is from -20.0 to -53.2kPa.)

1. See right figure. Connect a vacuum pad B with same diameter as using pad A to a vacuum gauge (our company model : SG-4) and confirm indication " 0 " .
2. Under generating vacuum by CONUM, connect both pad and set the desired setting value of vacuum by adjusting supplying pressure to CONUM with filter regulator.
3. Loosen the hexagon nut for fixture of vacuum switch.
4. Connect an electric tester (resistor measurement range be selected).
5. Turn the screw of vacuum setting adjustment fully to counter clock wise. (Clock wise turn is for atmospheric pressure and counter clock wise turn for vacuum absolute.)
6. Turn the screw to clock wise gradually until the indication of conductivity is shown in the resistor range of tester.
7. Fasten the hexagon nut for fixture.
8. Adjustment is completed by above 1 to 7. Reconfirm proper setting by reducing the pressure of filter regulator and increasing again gradually until the conductivity is indicated in the tester, when the value of vacuum indicated is set value. If not, it is caused by some turning of the screw when fastened for fixture as above 7. In this case, once again repeat the operation from 2 to 7 above.
9. Finally, adjust the pressure of filter regulator in a proper using pressure value.



Operation(function, caution)

Vacuum switch

Sensor-on when vacuum reaches to the setting value.
Micro switch is used with spring type.
Arrange the wiring by taking into account the rating life time.
In case of CK type, the setting value at switch ON can be adjusted in the range of -20.0~ -53.2kPa.

Silencer

To decrease the noise of exhausted air from COMUM.
Regular maintenance should be executed periodically. Vacuum performance becomes worse if materials of silencer are clogged by oil, mist, dust, etc.

Solenoid valve

This solenoid valve controls vacuum generation.(As usual a 3 port valve is used to change the vacuum generation and stop.)
Keep the operating pressure and air-flow sufficiently.(Pay attention to the effective area in section.)

Supply side piping

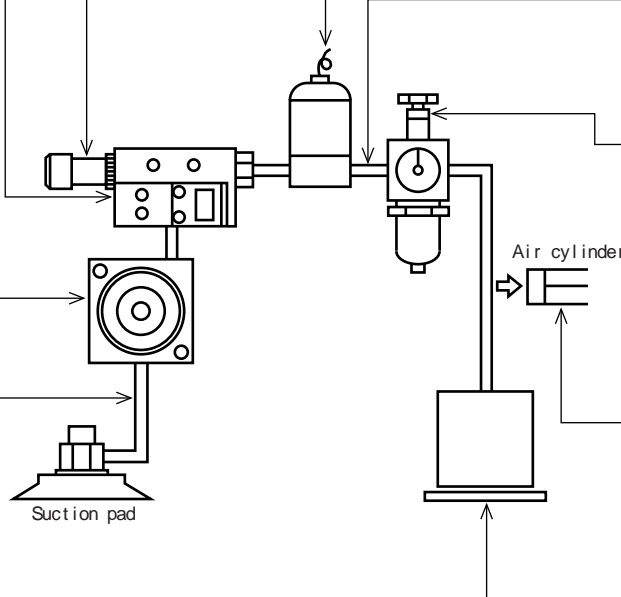
Inside diameter of hose at air-supply side
CV-05/10.. 4mm or more
CV-15.. 6mm or more
CV-20.. 7.5mm or more
CV-25.. 9mm or more
CV-30.. 11.5mm or more
(If the length of hose being used exceeds 2m, use hose with larger inside diameter.)
Smaller inner diameter of hose and joints than specified may reduce the pressure, flow and vacuum performance.

COMUM Filter

To prevent foreign particles from pad not to enter into the inside of COMUM. Select an appropriate filter out of VF-2, VF-3, VF-5, VF-6 as per operational conditions.
Periodical cleaning is required at appropriate interval to prevent clogging of filter by moisture fluid and other contaminants.

Vacuum piping

Inside diameter of hose at vacuum side
CV-05/10.. 4mm or more CV-15.. 6mm or more
CV-20.. 7.5mm or more CV-25.. 9mm or more
CV-30.. 11.5mm or more
(A hose with one size larger diameter is recommendable if the length of the hose exceeds 2m.)
Avoid to use elbow joints.
Smaller diameter than specified for pipings and fittings causes pressure drop and insufficient flow volume, by which the vacuum performance is lowered and suction impossible



Filter regulator

Be sure to keep the specified pressure and rate of air-flow stable.
The operating pressure(0.35; 0.5MPa) is specified at the air supply port during vacuum by COMUM generating.
Adjust the operating pressure by taking pressure drop into account.
Filter should be drained periodically (Be sure to drain frequently especially when air humidity is high.)
Never use a lubricator.

Connection to other pneumatic equipments

Be sure to keep air actuator and COMUM as close to the air-supply (compressor) as possible.
(Otherwise it may cause insufficient supply pressure and flow volume, by which the vacuum performance may not be acquired well.)

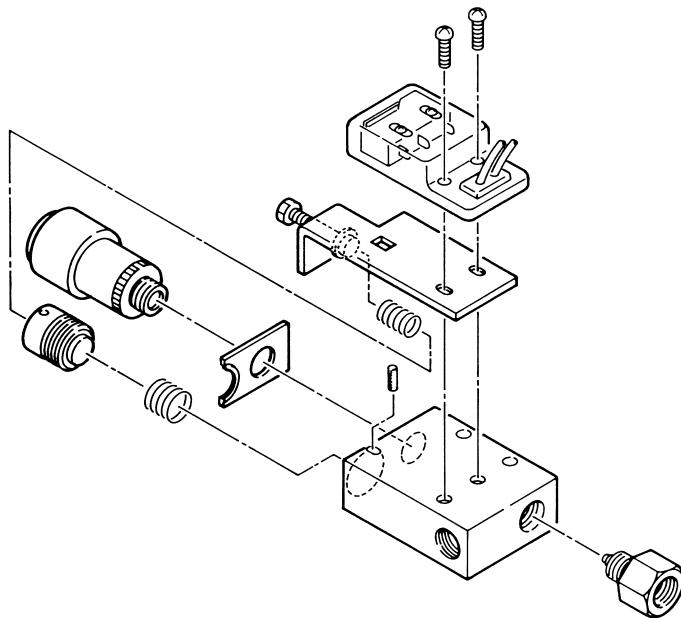
Compressor

Capacity of compressor should be good enough to cover the whole quantity of consumption of all pneumatic devices including COMUM.

CAUTION

- * There must be no air leakage in the pipings for both of supply air and vacuum.
- * 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	
	CV body
	Silencer
	Plunger(CK type)
	Spring(CK type)
	Stopper(CK type)
	Spring pin(CK type)
	Supply port nozzle
	Vacuum adjustment Assy(CK type)
	Switch Assy(CK type)
	Screw +

CAUTION

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