MC72 Vacuum Generator Manual

Thank you for purchasing the MC72 CONVUM ejector. Please read the instruction manual thoroughly and make sure that you understand the operation procedures before using the product. This manual is important for future reference, so please keep it where it can be easily retrieved.

・The precaution described hereinafter is for safety use of product to avoid personnel injury or damages.
・The precaution is divided into 「**DANGER**」, 「**WARNING**」, 「**CAUTION**」 by the degree of personnel injury or property damages caused by improper handling of product.
・Observe the every description for safety measures.

⚠ **DANGER** : Improper handling may produce imminent danger to cause heavy injury or death.
⚠ **WARNING** : Improper handling may produce danger to cause heavy injury or death.
⚠ **CAUTION** : Improper handling may produce danger to cause personnel injury or property damage only

APPLICATION

⚠ DANGER

・Do not use at circumstance with inflammable gas.

⚠ WARNING

・Make design for the application in safety not to cause the accidents by vacuum pressure down due to power supply failure or air source trouble. Take safety measures, for instance, with work-piece-drop preventing mechanism for the danger to cause personnel injury or machine damages resulted from the drop of work-pieces during transportation due to the disappear of suction force by vacuum pressure down.
・Continuous supplying electricity in long period to the solenoid valve may cause the damages of packing and gasket due to the self-heating by the solenoids.
・Use clean air. Do not use such compressed air as containing corrosive gases, chemicals, salty materials etc. which may cause damages or malfunction of product.
・Avoid the use of product under the circumferential conditions such as corrosive gases, chemicals, sea water and steam or with their adhesion existing.
・Protect from direct sunshine by protect cover.
・Cut the radiant heat if heat sources existing around.
・Take measures to keep the inside temperature of control panel less than the designated for product by means of heat radiation outside from control panel.
・Take protection against welding spatter which may cause burnout of plastic parts and fire.
・Do not use under strong magnetic field or near high current electricity, for instance, near large magnetic coils or spot welders which may cause malfunction of vacuum sensor.
・Do not use under water spattered on the vacuum sensor or solenoid valves which may cause short circuit or coil burnout. Protect with cover or install inside panel.
・Do not use under excessive impact force which may cause malfunction.

⚠ CAUTION

・In case vacuum pads more than two pieces are connected to one vacuum switching valve, the work-piece removal from one pad may cause the other work-piece removal due to the vacuum pressure drop. Take safety measure to install work -piece-drop protection mechanism.
・Do not activate the solenoid valve for vacuum brake control during vacuum exhausting. If activated, the vacuum braked and causing trouble.
・Confirm the Specification and do not use out of the specified range of pressure and temperature.
・Install air filter capable 5 micron under. ・Install air dryer. Compressed air containing drain may cause malfunction of vacuum devices. By the air dryer, the humidity of compressed air lowered and the drain reduced.
・Install sludge filter or mist cleaner. Sludge i.e. the deteriorated residue of compressor oil may cause malfunction.
・Use with no lubricant.
・Take measure, for instance, to install air dryer when used under low temperature less than 5 degree C to avoid the solidification of drain or water in compressed air.
・Impact force is to be less than 147m/S^2 (15G) and vibration less than 39.2m/S^2 (4G). Over the force and vibration may cause malfunction.

INSTALLATION

⚠ WARNING

・Install not to loosen the fixed or connecting sections. Insufficient force of fitting force may cause disconnection of vacuum switching valve.
・Do not activate overall system until every correct function and no leak inspected and confirmed after connecting compressed air and electricity to make sure all the installation in correct and every function confirmed and in safety.
・Keep enough space for maintenance.

⚠ CAUTION

・Do not wipe the indication of model number of name plate by organic solvent to avoid disappearance of the indication.
・Fasten each screw with the following torque; M3：0.59（N・m）、M4：1.37（N・m）、M5：2.84（N・m）

PIPING

⚠ CAUTION

・Do not use spiral pipe for vacuum line. Spiral pipe with piping resistance may cause the delay in reaching time to the designated vacuum or reduction exhaust air flow rate, which lead to the vacuum pressure lower at suction end and may cause the malfunction of vacuum sensor.
・Pay attention to pipe diameter in case Manifold type. In case the number of units manifold increased, insufficient flow rate anticipated , so connect the pipes to the both end of manifold.
・Flushing is to be needed before connecting pipe to remove cutting particles, cutting oil and dust from the inside of pipe.
・Do not connect pipes vice- versa for compressed air supply port and vacuum port to each device in proper way in referring to catalog etc.
・Be careful to avoid insert of cutting particles and sealing materials into pipe at screwing and fittings. The screwing torque is to be within the following torque. Rc1/4：7.0～9.0（N・m）
・Supply pressure at compressed air side (P port) is to be in the range of S type: 0.5 to 0.6 (MPa), R type: : 0.35 to 0.45 (MPa), . In case Manifold type, all units servicing simultaneously, the pressure reduction anticipated, so increase the supply pressure approx. 0.05 (MPa) more. In case manifold type with five units or more, supply the compressed air to the both side of manifold and the compressed air is to be better supplied from the branch near to the pressure source as much as possible and apart from the piping for air pressure actuator.
・In case the pipe for connecting vacuum pad (V port) is too small diameter or too long, the vacuum pressure inside of switching valve increasing and the vacuum sensor keeping ON. In such case, use larger pipe or shortening the length.

WIRING

⚠ WARNING

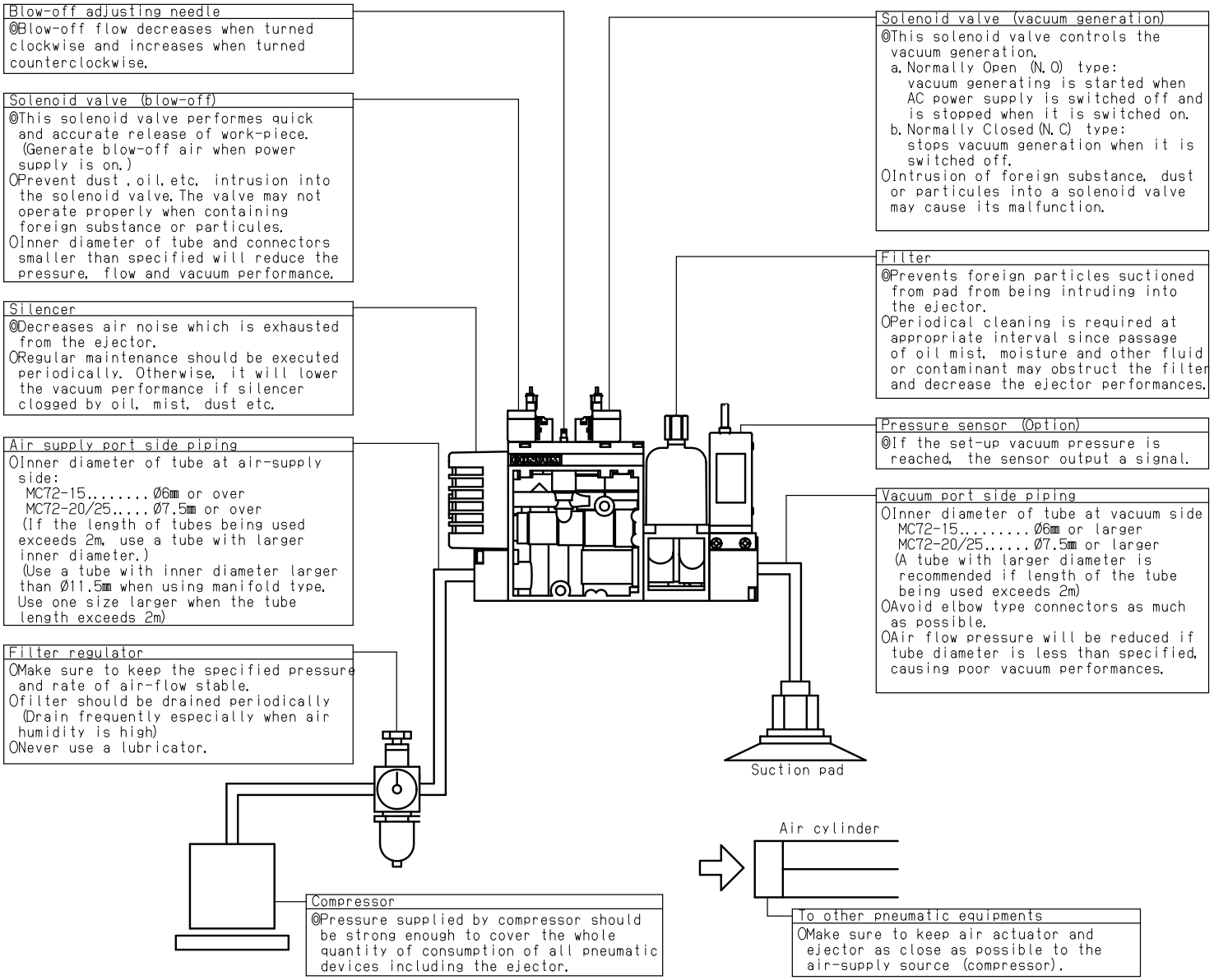
・Do wiring works after shut down of compressed air and electric power as well. Without shut down, electrical shock or malfunction of actuator may cause personnel or properties damages.
・Avoid bending stress or repeated tensile force added to lead wire. In case such stress or force added, it may cause wire breaks. For wiring, enough length and spacing are to be needed.
・Do not make improper wiring. For wiring to solenoid valve, confirm first by catalog or product as is the color or symbol mark to identify its electrical characteristics and then connect properly. No switching of solenoid valve under improper wiring.
・Do not make improper voltage supply. For wiring to solenoid valve, confirm first the wiring in proper and then power on. Improper voltage supply may cause malfunction or coil damage.
・Do not make wiring together with power supply and high voltage cables. Do wiring apart from such cables. Otherwise, malfunction of overall controlling system including vacuum sensor be anticipated due to the noise emitted from such cables.
・Avoid such wiring as producing tension of lead wire for solenoid valve when mounting on moving section or body. Otherwise, insufficient connection or wire breaks be anticipated to cause malfunction. When mounting on moving section or body, the lead wire fixed to avoid connector’s shifting.

MAINTENANCE

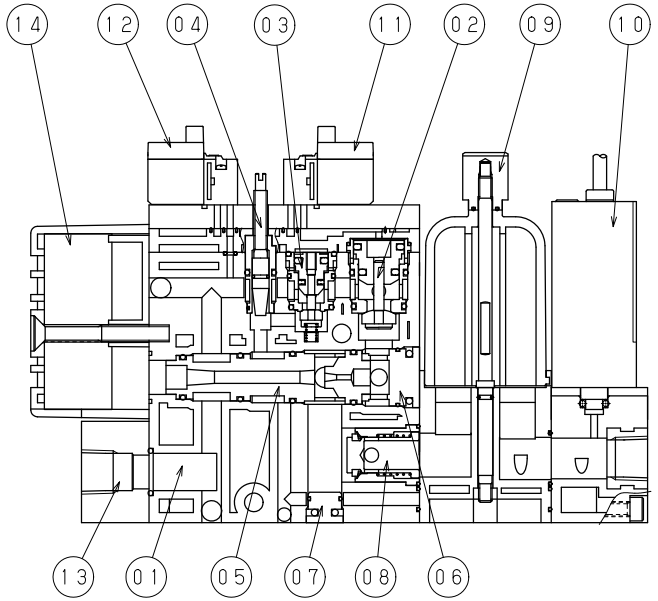
⚠ WARNING

・Air filter drain removal be done periodically to keep air quality.
・Do not disassemble. Disassembling may cause loss or damage of parts inside.

Operation (◎function, ○caution)



Structure



01 : Body
02 : Vacuum Generating Master Valve
03 : Vacuum Release Master Valve
04 : Blow-off Adjusting Needle
05 : Nozzle Kit
06 : Hole Cap A
07 : Hole Cap B
08 : Check Valve
09 : Filter Unit
10 : Pressure Sensor Unit
11 : Solenoid Valve (Vacuum Generating)
12 : Solenoid Valve (Blow-off)
13 : Compressed-Air Supply Base
14 : Silencer

⚠ CAUTION

* There must be no air leakage in the piping's 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 specification and outer appearances.