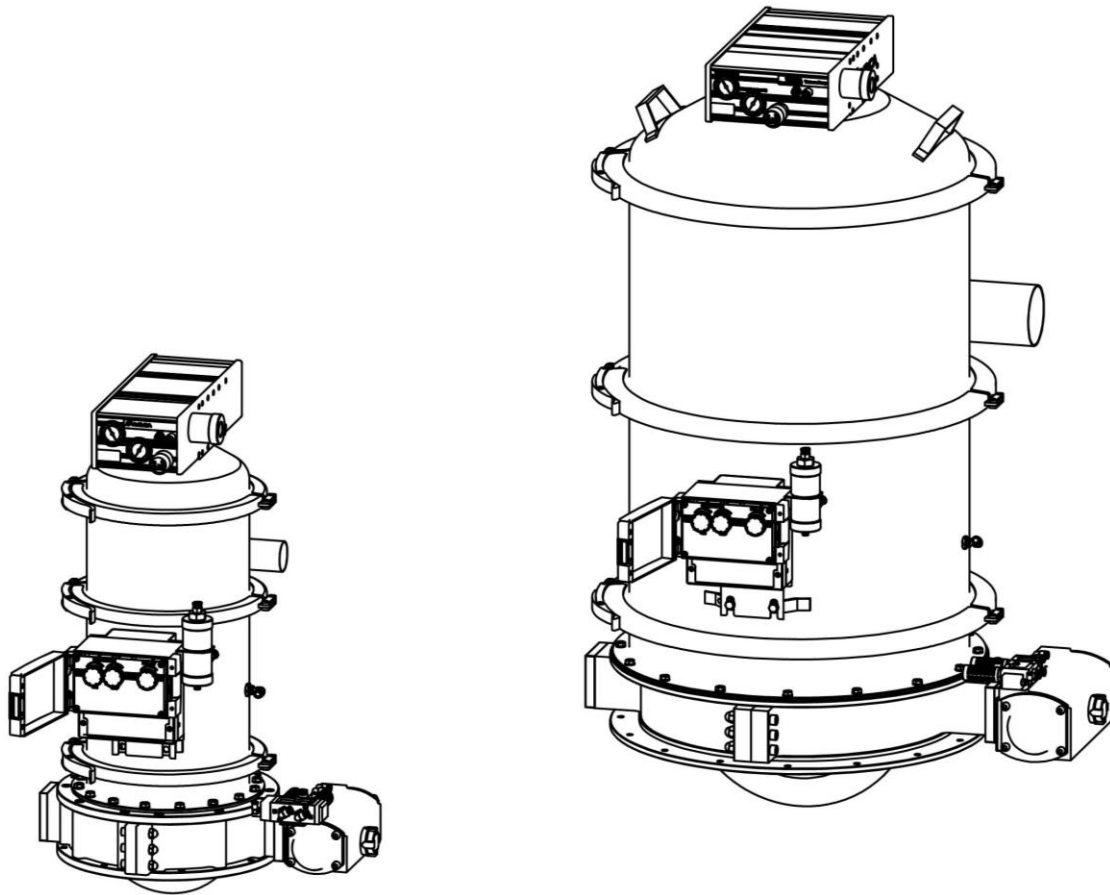


MANUAL

VTC SERIES VACUUM CONVEYOR

<https://www.vmeca.com>



VMECA CO., LTD.

24, Beotkkot-ro 10-gil

Geumcheon-gu Seoul 08606 South Korea

TEL : +82 - 2 - 2027 - 3700

FAX : +82 - 2 - 808 - 0013

Contents

1. Foreword	3
1 – 1. Description	
1 – 2. Use	
2. Name and Address of manufacture	4
2 – 1. Name	
2 – 2. Address	
2 – 3. Name plate	
3. Description of the visual appearance	6
4. Description of the Vacuum Conveyor	7
5. Maintenance	8
5 – 1. Assembly Part	
5 – 2. Maintenance Diagram	
6. Dimension	19
7. Installation	26
8. Caution of the Installation	42
9. Operation	42
9 – 1. Preparation for Operation	
9 – 2. Starting	

1. Foreword

1-1. Description

This manual will provide you with general operating method and maintenance of VMECA Vacuum Conveyor. Please contact VMECA(VMECA Co., Ltd) if you have a question or need any support regarding the conveyor. Please be aware some information could be omitted about the operating technique, safety lock, etc. because based on our experience the operating system can differ depending on the customer environment. For proper operation of the system and proper coordination of the equipment in the operating procedures of all production facilities, a comprehensive review should be carried out before installation and operation in the machine.

1-2. Intended Use

VMECA's vacuum conveying system uses vacuum to great advantage by conveying dry products through dedicated pipe systems. With our help, customers raise their productivity and achieve higher quality.

2. Name and Address of manufacturer

2 – 1. Name

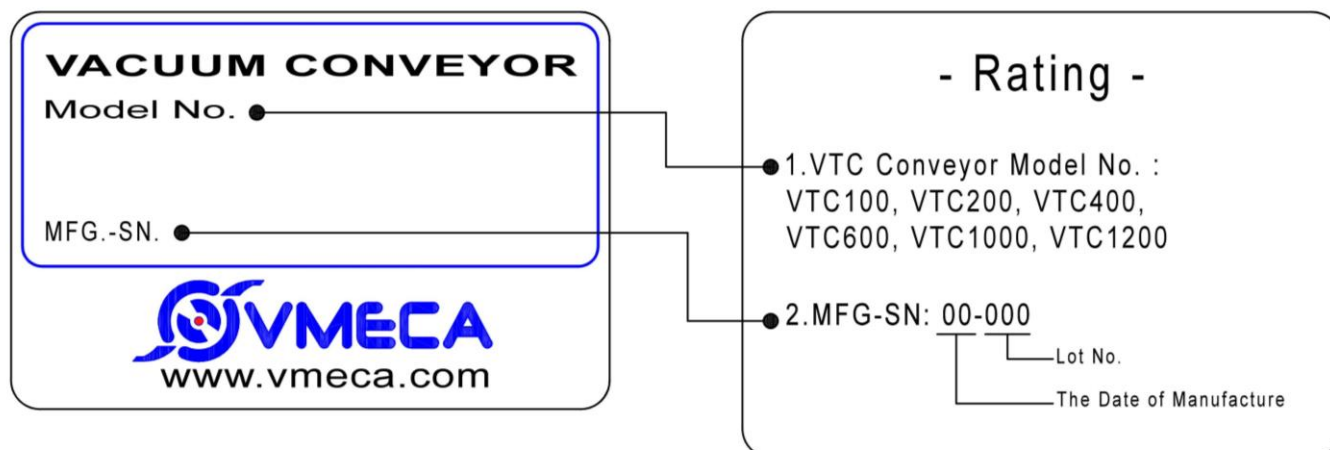
VMECA Co., Ltd.

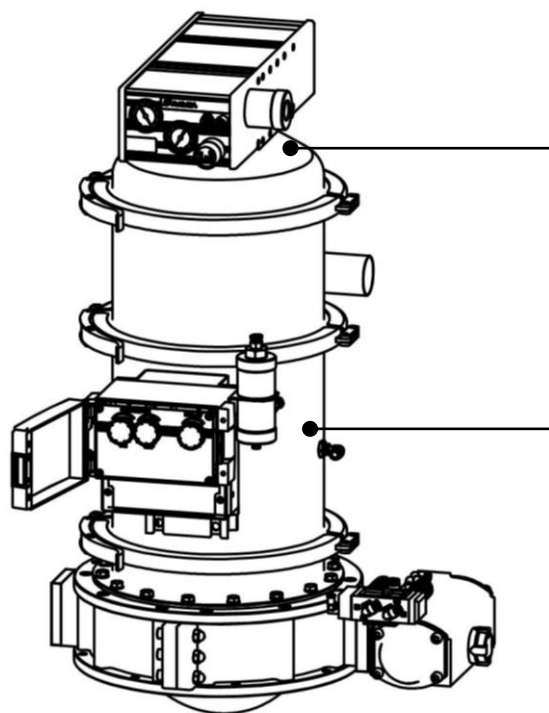
2 –2. Address

24, Beotkkot-ro 10-gil
Geumcheon-gu, Seoul 08606 South Korea
TEL : +82 – 2 – 2027 – 3700
FAX : +82 – 2 – 808 – 0013

Home page : [https // www.vmecca.com](https://www.vmecca.com).

2 – 3. Name Plate



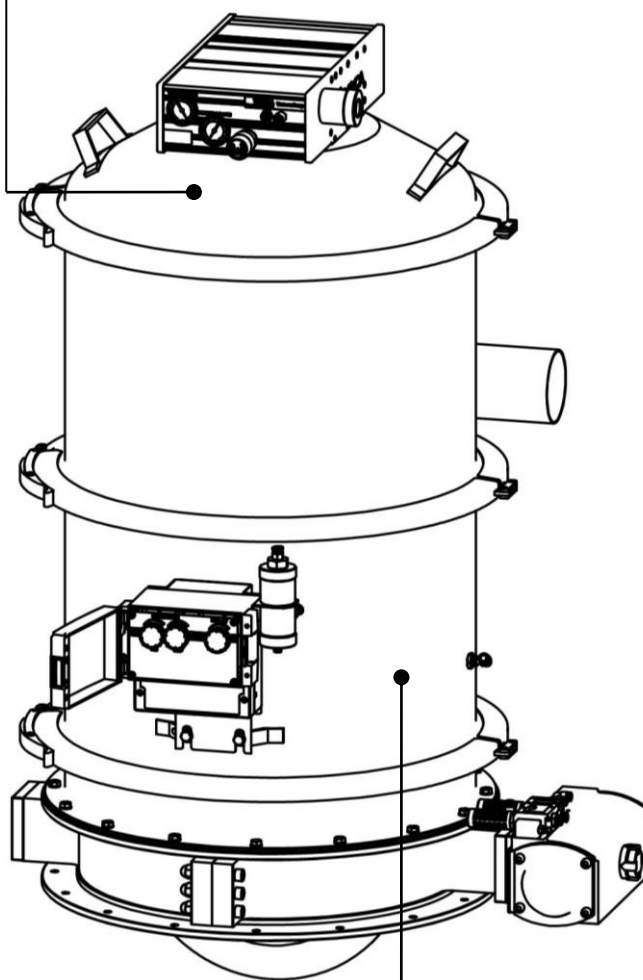


VTC 100~400

VACUUM CONVEYOR

Model No.

MFG.-SN.



VTC 600~1200



WARNING



For your safety,
please read the
following before
using.

- Please keep these instructions and review them before using this unit.
 - 1. This equipment shall not be used beyond specified temperature range.
 - 2. The whole conveyor system has to be grounded to the same earthing point(EquipotentialBonding).
 - 3. VTC Vacuum conveyor must not be used lower than 3mJ bulk materials minimum ignition energy.
 - 4. There must be no flammable gases and vapors may be present in the bulk materials or be transported together.
 - 5. The delivery of the absorbed bulk materials must not be placed directly in hazardous areas of Zone 0 and 1.
 - 6. Inside temperature of vacuum conveyor is reached to the 11.7K level, bulk materials is available lower than 60°C.
 - 7. The amount of aspirated materials may not exceed the mass of 10Kg each intake stroke.
- It may cause accident if above instructions are not followed.

1) MODEL NO : VTC100, VTC200, VTC400,
VTC600, VTC800, VTC1000, VTC1200

3. Description of the Function of Conveyor Parts

1. Vacuum Pump

The Vacuum Pump is what allows the Vacuum Conveyor System to transport dry raw material. The multi-stage venturi vacuum pump runs off of compressed air as its main power supply. The vacuum pump creates a negative force allowing it to pick up the desired material and transfer it.

Due to its multi-stage venturi vacuum pump, the air consumption is low and generates no heat due to no moving parts. The servicing of the vacuum pump is brought down to a minimal level which allows it to have a long life.

2. Conveyor Module

In order to store the inhaled object and send it through the control timer, the filter is internally installed.

3. Filter

This is an apparatus for separating and collecting fine material particles mixed in the air after separating the powder in the mixed air mixed in the main body. The filter surface is designed to allow enough air to flow through the mold, which can be removed and cleaned.

4. Air Shock Tank

Air Shock Tank releases any particles that are stuck in/on the canister or the filter by air blowing out that is stored in a tank for every cycle.

5. Actuator / Gate Valve

The Actuator controls the Hopper Door (located at the bottom of the Vacuum Conveyor) to open and close. This allows the materials to drop that are held inside the Conveyor.

6. Control Box

The timer is built in, so you can adjust the feed amount and use automatic operation or manual operation. There are two types, electric and pneumatic.

7. Clamp

It serves to connect module between top and bottom module and module gasket.

8. Non Return Valve

It serves to close the conveying piping so that the conveyed material sucked into the main body does not flow backward.

4. Description of the Vacuum Conveyor

Start the Vacuum Conveyor after preparation in the following order:

1. In the absence of a conveying object, first make a blank rotation. At this time, the compressed air pressure should be 4.5 bar or more.
2. Check vacuum degree of Vacuum Pump during ball rotation.
3. When the suction port is closed, the degree of vacuum should be -70 to -80kpa when compressed air is 5 ~ 6 bar.
4. Adjust the air flow into the feed nozzle or feed adapter (option).
5. Adjust the time of the control system
(Short suction time, long discharge time and start operation)
6. Inhale material into feed station or feed nozzle.
(Start operation with a quantity of material measured to the maximum internal volume of the conveyor)
7. Measure the amount of material by setting the suction and discharge times the same, and gradually increase the suction time and reduce the discharge time and the intake air to increase the required transfer rate.

Caution

To prevent excessive material intake and clogging of the filter, set the vibration suction time considering the internal volume of the conveyor. Actual volume of material should be in accordance with the characteristics of the material. Incoming air can become clogged in the air.

1. Check the pressure drop at the end of material transfer and check the vacuum at normal operation.
2. Record the final adjusted control time, and record the volume and weight of the substance in one iteration.

► Transfer way and use environment

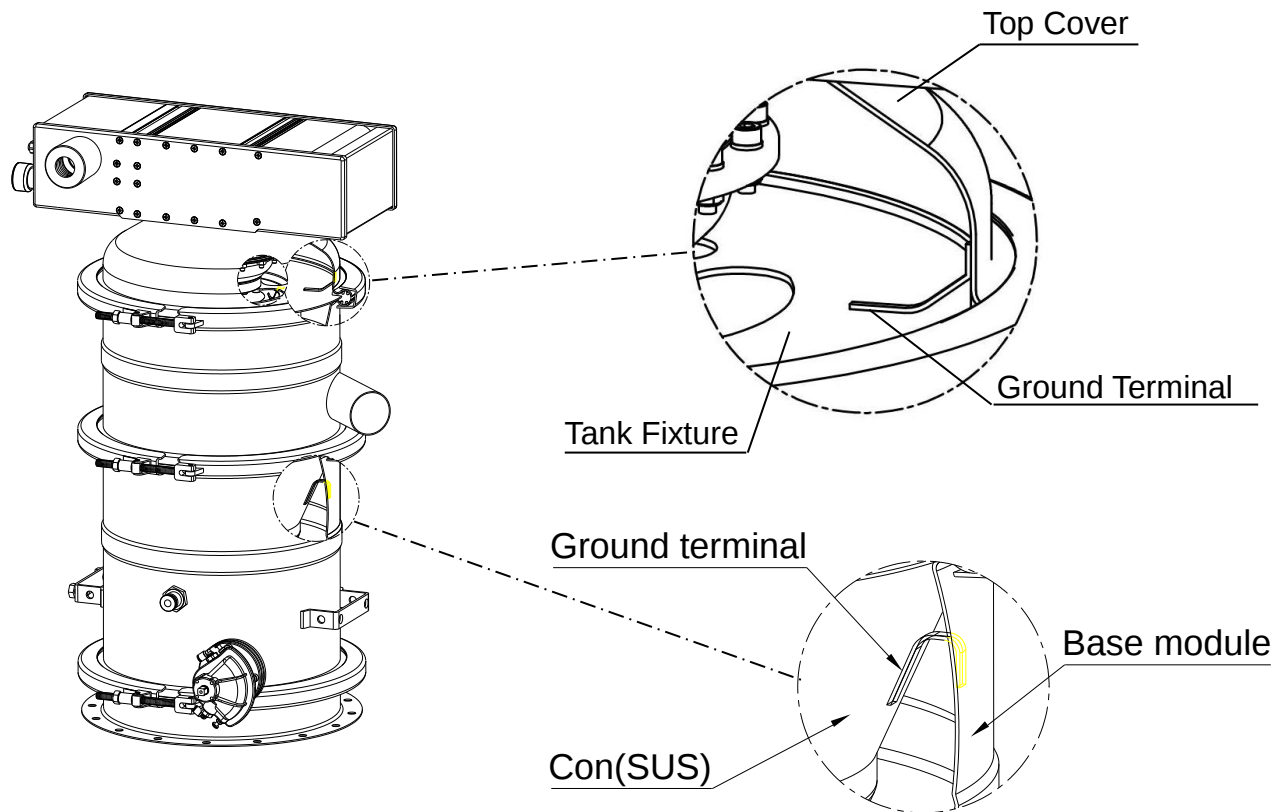
- When moving the product, first, to stop the product in operation. Remove the connected piping with all the discharged material inside, then remove each clamp and move it safely for each part.

- Operating environment: indoor use, -10 ° C ~ + 60 ° C, relative humidity 40% or less.

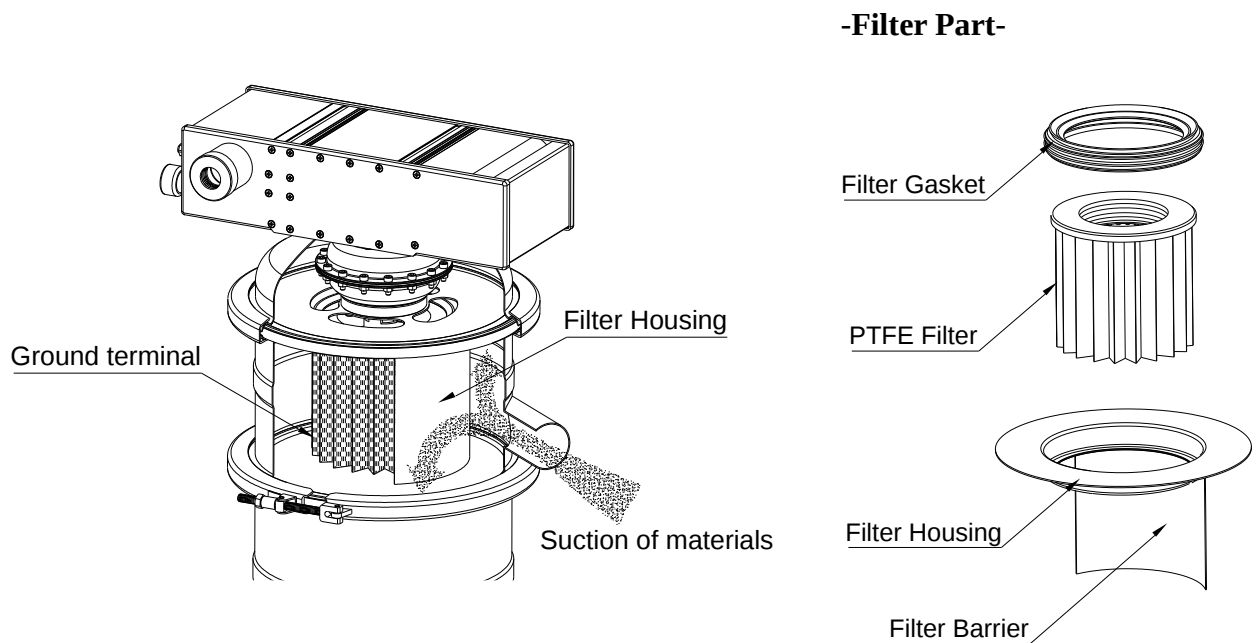
5. Maintenance

5-1. Ground Terminal

- Ground terminal of Tank Fixture must be attached to the top of the Filter.
- Base Module of Ground terminal cover must be attached to the SUS Cone.



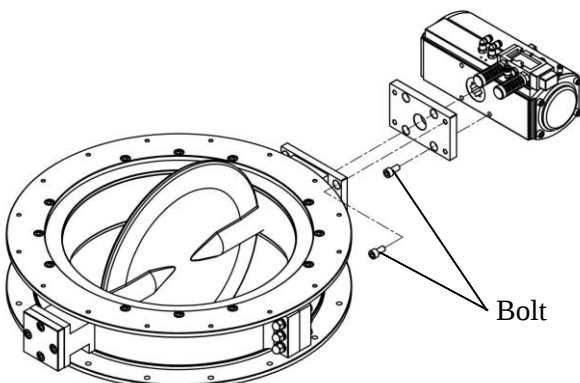
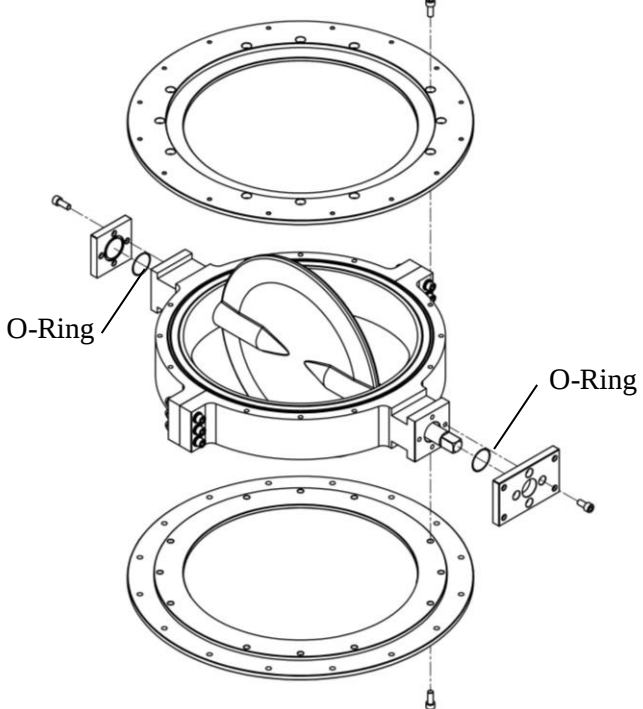
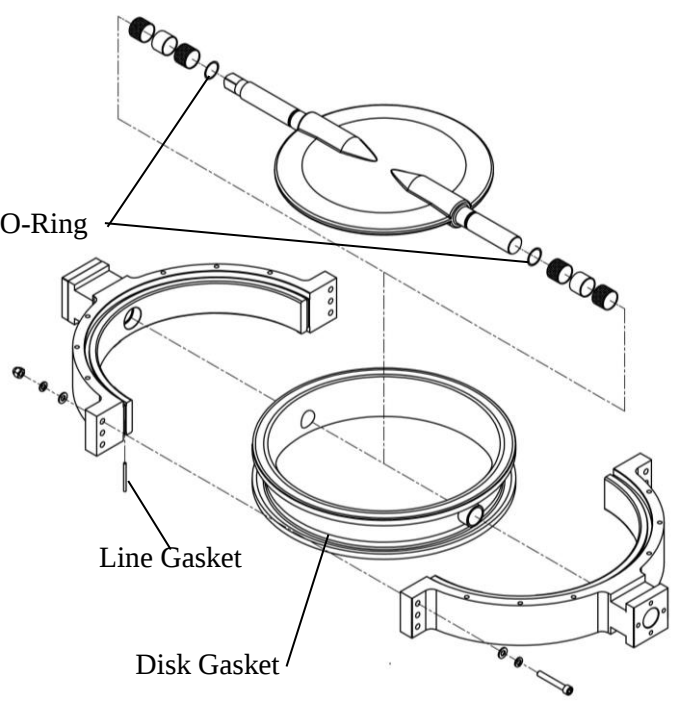
5-2. Direction of Filter Housing Cover



Cover of Filter Housing should be assembled in the direction of inlet.
This is to protect the filter when sucking the feed.

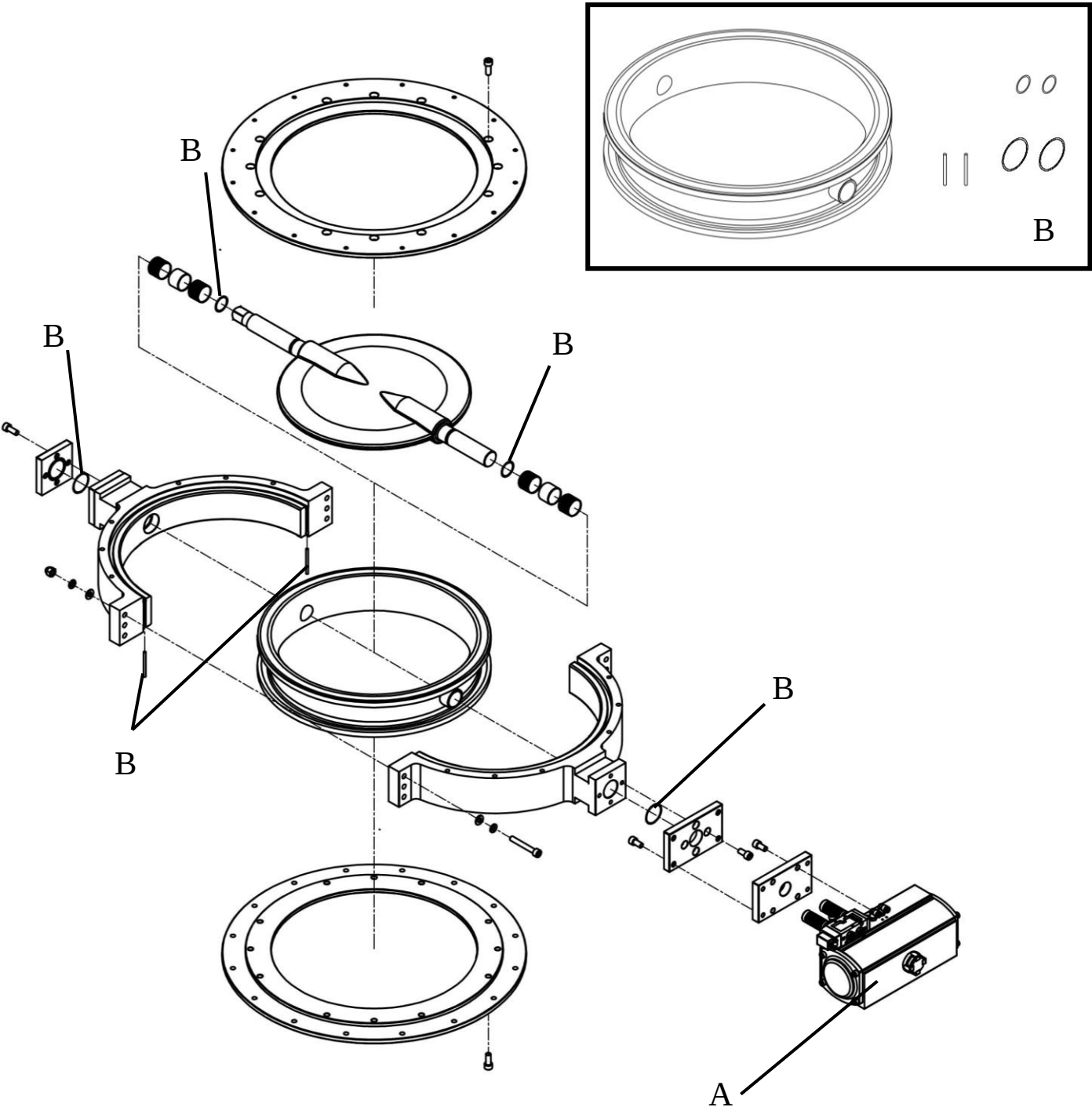
5-3. Spare Parts of Gate Valve

- Disassembly

 Bolt	Disassemble the Bolt shown in the drawing to separate the actuator from the body part of the Gate Valve. ※ Disassemble the bolt in the order shown in the figure.
 O-Ring O-Ring	Remove the bolts of the flange plates at the top and bottom, and remove the bolts of the end plates on both sides. ※ Replace the O-Rings connected to the end plate when it is re-assembled.
 O-Ring Line Gasket Disk Gasket	Disassemble the 2 bolts and cap nuts was used for fixing the body, and then Disk Gasket and Disk, ※ Replace the O-Rings at the disk once they are reassembled. ※ Replace the disk gasket when assembling it.

- Assembly

Assembly is the reverse order of disassembly.

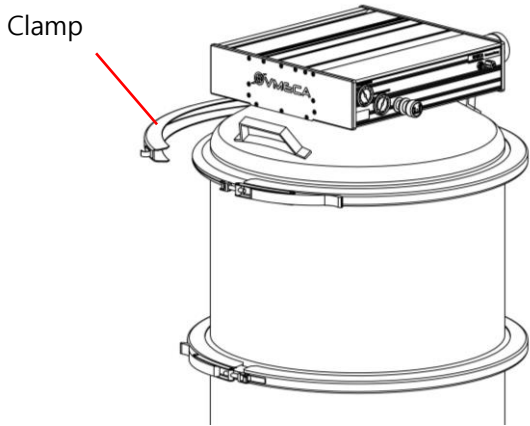
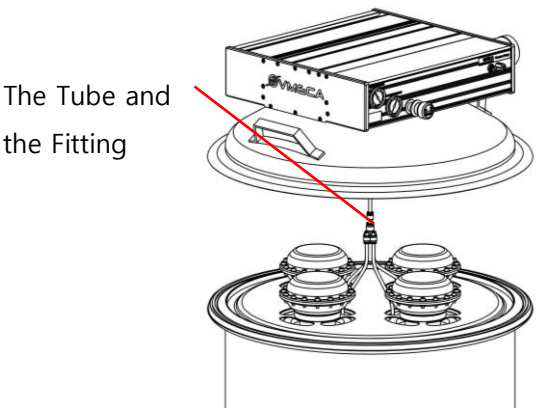
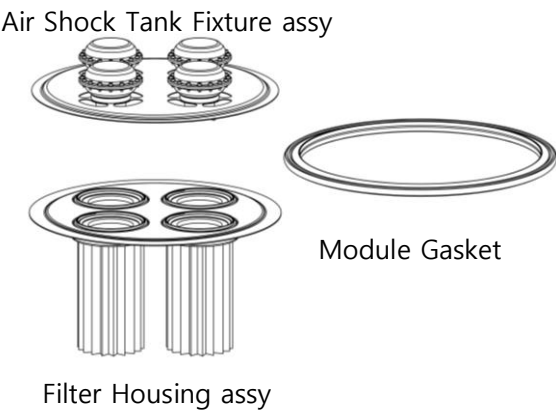
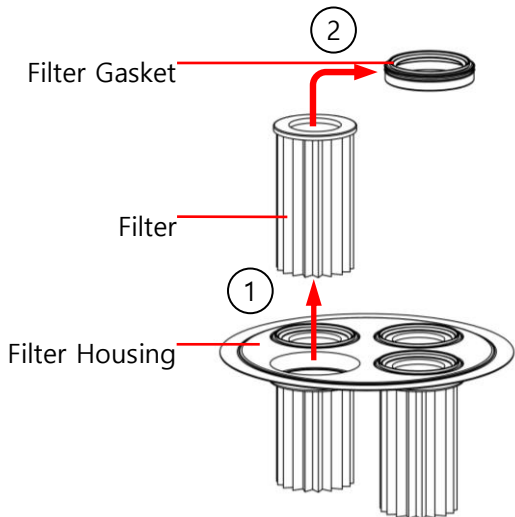


-Spare Part

	Description	Remark	Order No.
A	ACTUATOR ASSY BFV250		176A07
	ACTUATOR ASSY BFV400		176A08
B	REPAIR KIT BFV250		176A11
	REPAIR KIT BFV400		176A12

5-4. Replace spare part of filter

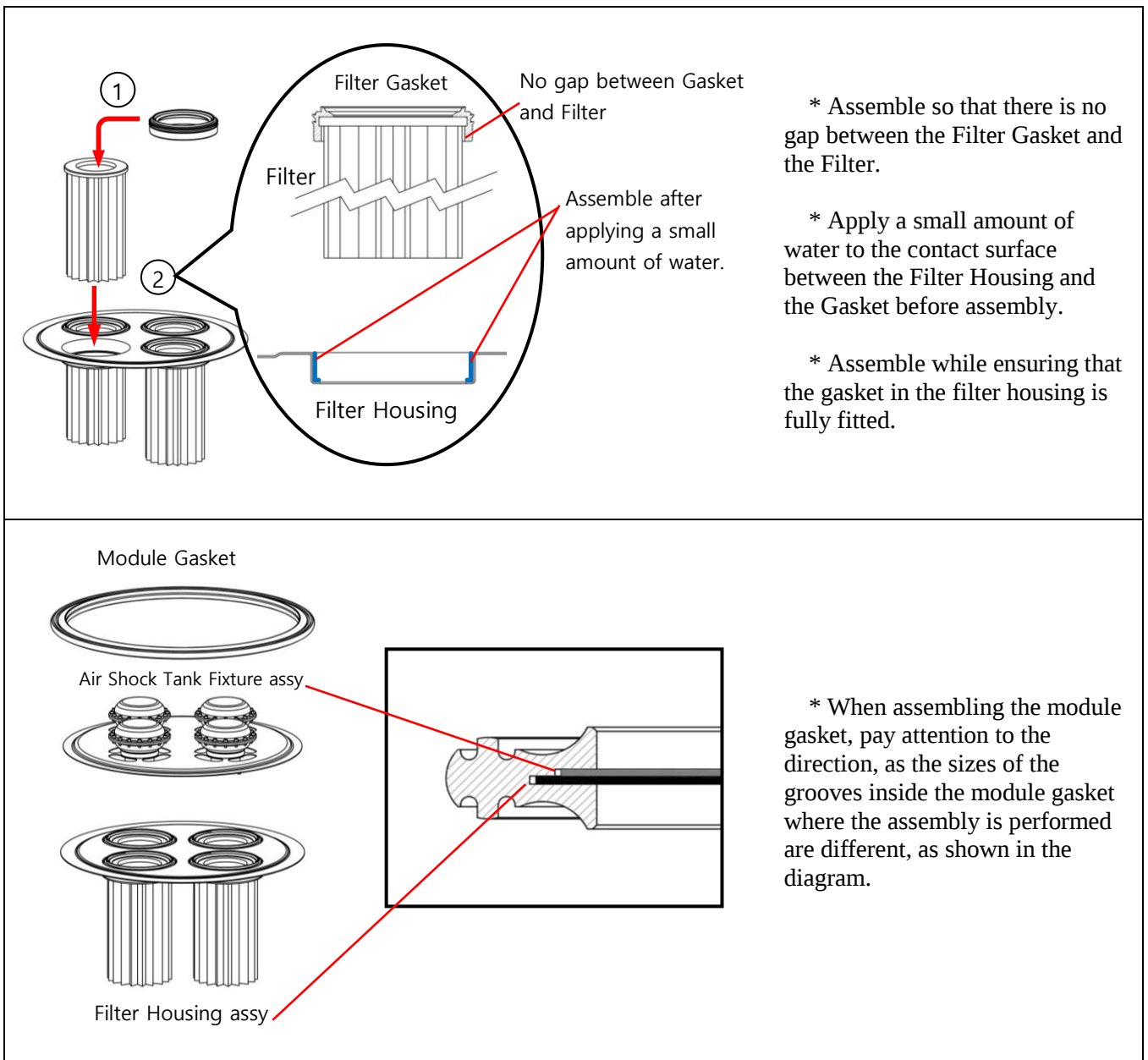
- Disassembly

 Clamp	Disassemble the top Clamp.
 The Tube and the Fitting	Disconnect the tube and fitting connected to the Air Shock Tank and Mega Pump.
 Air Shock Tank Fixture assy Module Gasket Filter Housing assy	After taking it out of the conveyor, remove the module gasket and separate the Filter Housing assy and the Air Shock Tank Fixture assy from each other.
 Filter Gasket Filter Filter Housing	Remove the filter from the filter housing together with the filter gasket as assembled. Then, detach the filter gasket from the filter. Replace the old filters it with new filters or clean the original filters, and reassemble in the reverse order of disassembly.

- Assembly

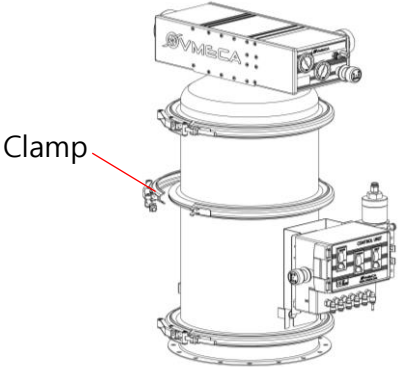
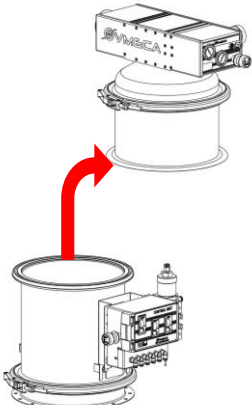
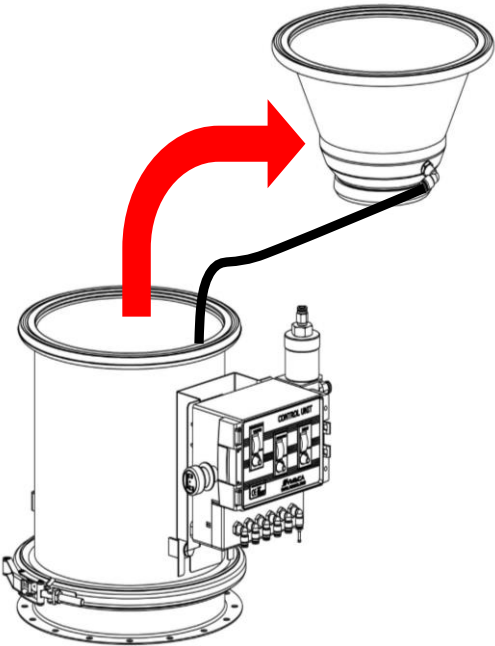
Assembly is the reverse order of disassembly.

※ Precautions for Filter Assembly



5-5. Hopper Cover, Gasket Disassembly and Hopper Cover Angle Adjustment

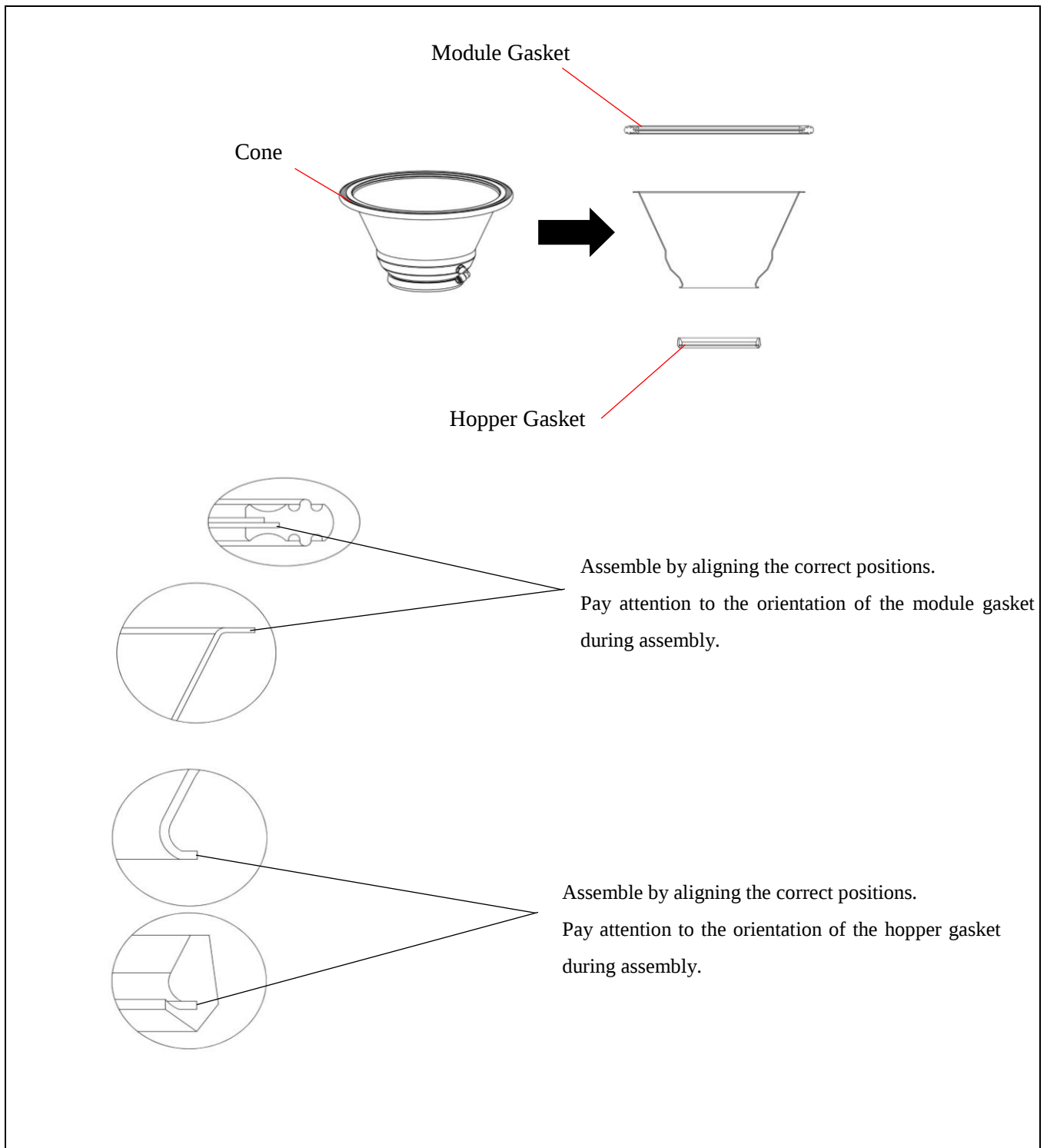
- Hopper Cover, Gasket Disassembly

 Clamp	-Remove the clamp from the base module.
	-Separate the conveyor top located on the base module.
	-When separating the cone, disconnect the connected hose. (If a blowing valve option is applied) -After separating the cone from the conveyor, remove the module gasket and hopper gasket if necessary and replace them.

- Hopper Cover, Gasket Assembly

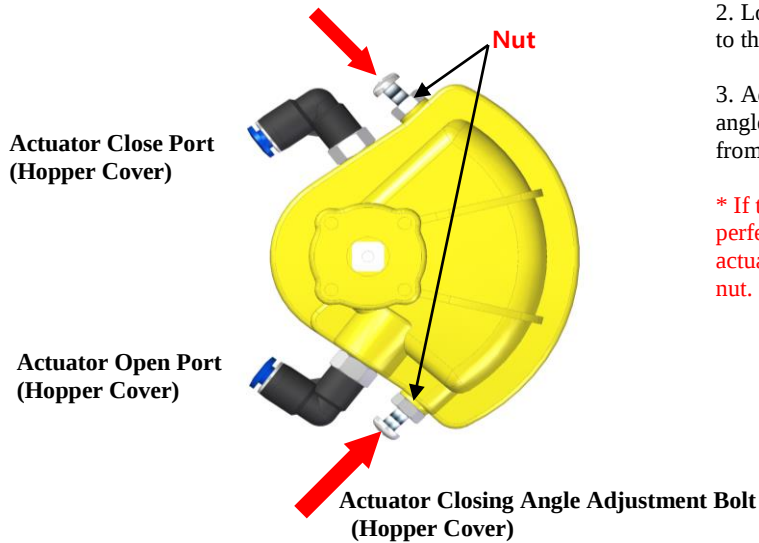
Assembly is the reverse order of disassembly.

※ Precautions for Filter Assembly



- Hopper Cover(Actuator) Angle Adjustment

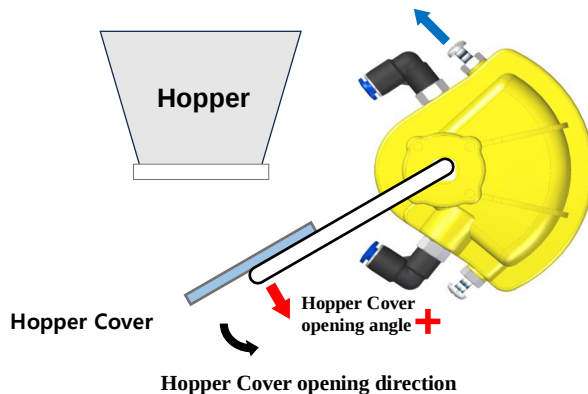
(Hopper Cover)
Actuator Opening Angle Adjustment Bolt



1. To adjust the opening or closing angle of the actuator (hopper cover), first loosen the nut on the angle adjustment bolt.
2. Loosen or tighten the angle adjustment bolt corresponding to the opening or closing of the disk.
3. Adjust the angle of the actuator (hopper cover) using the angle adjustment bolt, then tighten the nut to prevent the bolt from loosening.

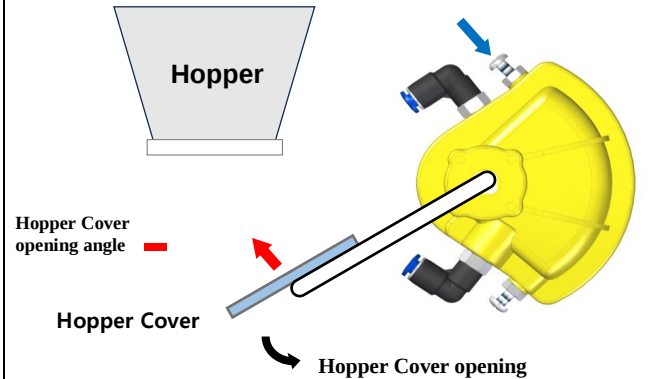
** If the nut is not tightened properly, the seal may not be perfectly maintained, which could cause air leakage during actuator operation. Therefore, be sure to fully tighten the nut.*

Actuator opening angle adjustment bolt, when loosened,

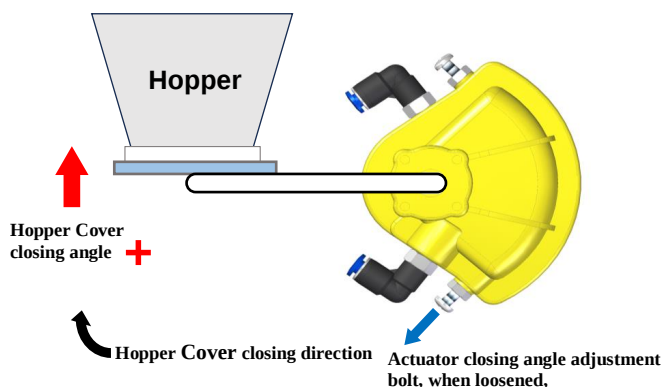


- When the actuator opening angle adjustment bolt is turned counterclockwise to loosen it, the hopper cover opens to a greater angle than before.

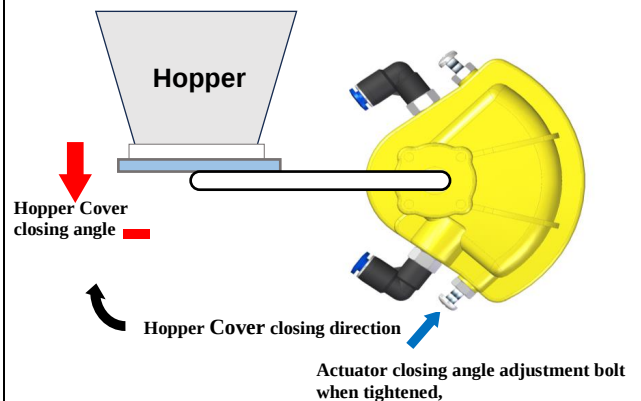
Actuator opening angle adjustment bolt when tightened,



- When the actuator opening angle adjustment bolt is turned clockwise to tighten it, the hopper cover opens to a smaller angle than before.

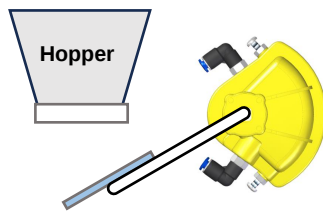


- When the actuator closing angle adjustment bolt is turned counterclockwise to loosen it, the hopper cover closes to a greater angle than before.

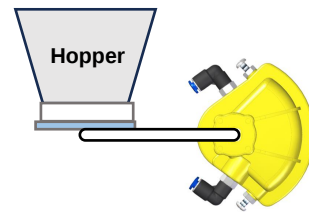
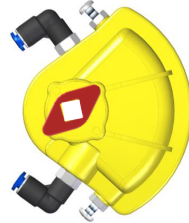


- When the actuator closing angle adjustment bolt is turned clockwise to tighten it, the hopper cover closes to a smaller angle than before.

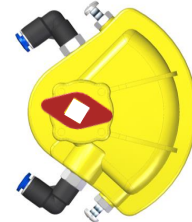
Check the status of the Hopper Cover (Open/Close)



When the Hopper Cover is open



When the Hopper Cover is closed



- To check whether the Hopper Cover is in the open or closed state, you can verify it by observing the angle of the red cap mounted on the actuator.

5-6. Maintenance Diagram

- ♣ VMECA Vacuum Conveyor is designed and manufactured to operate with minimal air consumption and running cost.
- ♣ For long life of the Vacuum Conveyor, please follow the procedures in the Maintenance Diagram below.
- ♣ Maintenance may vary depending on the material, cleanliness requirements, and/or environment of the application

- Maintenance Diagram-

Time Interval Inspection / Action	Daily	Monthly	two Every months	six Every months	In accordance with experience	Startup date new conveyor:
						Pressure drop, idle running at startup date: -kPa
						Date of filter replacement / washing:
1. Supply Air Pressure	☐					
2. Leakage test of the Conveyor and Vacuum Pipeline		☐				
3. Checking the pressure drop at transporting material	☐					
4. Checking the pressure drop at running idle		☐				
5. Washing Filter		☐			(○)	
6. Replacement of Filter			☐		(○)	
7. Checking the water separator			☐			
6. Disassembly cleaning and Inspection				☐	(○)	

✎ The left part of the checklist shows the maintenance checklist and the period of time, and the right part allows the operator to record the replacement / cleaning date of filter.

1. Check Feed Pressure

Check and make sure it is supplied within 5~6 bar.

2. Leak Test

Air may enter into the Conveyor and the Pipeline, so compare the vacuum level with the vacuum level in the closed position of the suction port.

3. Check the pressure drop during material transfer

Compare the degree of vacuum at normal operation with the degree of vacuum at the time of first operation.

4. Check pressure drop during idle running

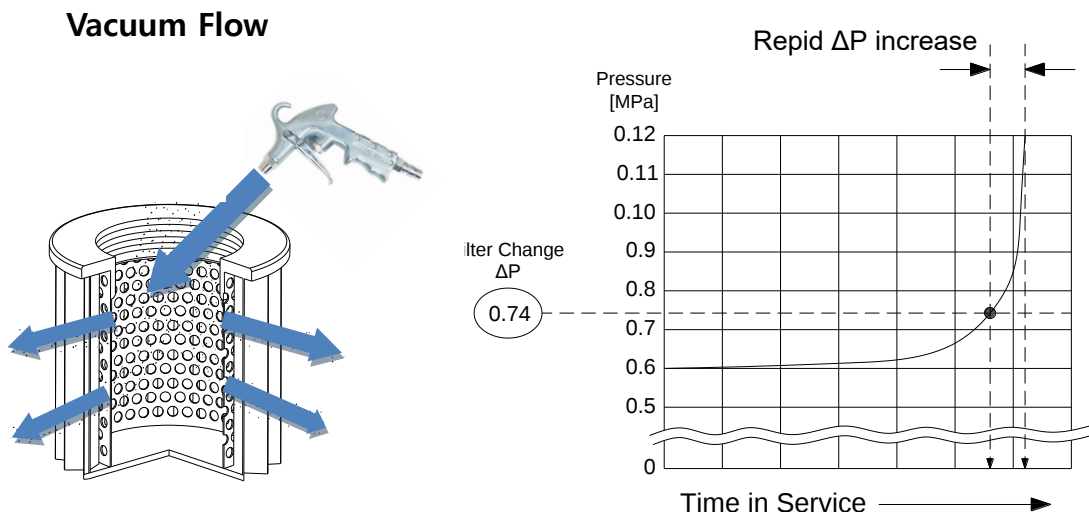
- (1) Check the vacuum level at idle running without any transferring.
- (2) Record the degree of vacuum level on the first day of operation on the right side of the checklist.
- (3) When the vacuum level is increased by -5 ~10 kPa at idle running, the filter needs to be cleaned or replaced.

5. Filter Cleaning

Wash 2~4 times in 40°C water and use after washing to ensure that no water remains.

6. Filter Replacement

It varies depending on the working environment, but is replaced when the air pressure that is normally supplied and filtered increases sharply based on the same filtration amount (the amount of air passing through the filter).



7. Check the Water Separator

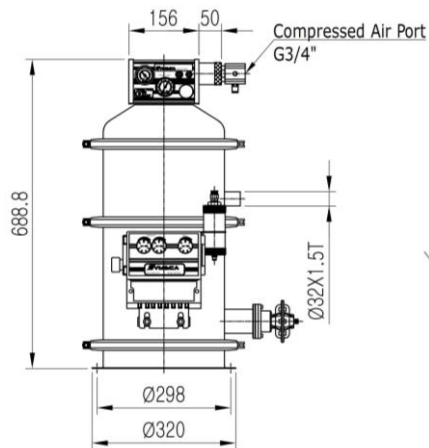
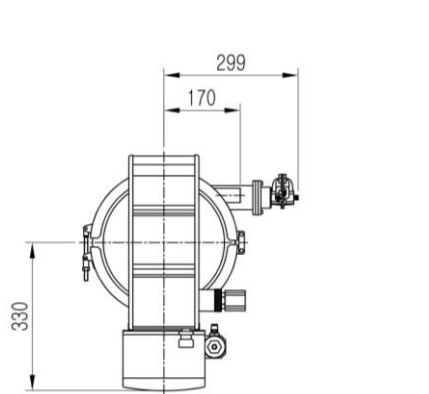
Check whether the air passing through the water separator has moisture.

Check whether Auto-Drain is operating.

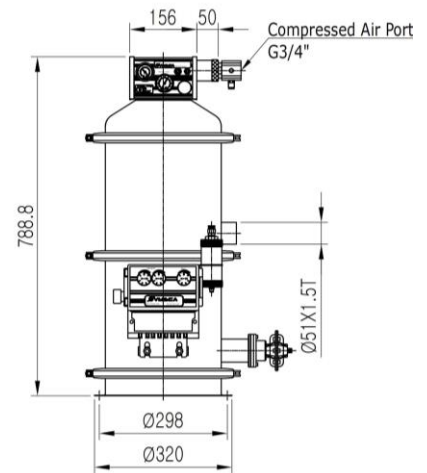
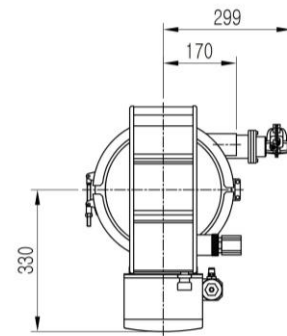
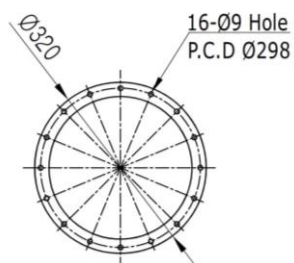
8. Disassembly Cleaning and Inspection

Follow the disassembly method on Section 5-1, and clean dust and dirt inside the Module.

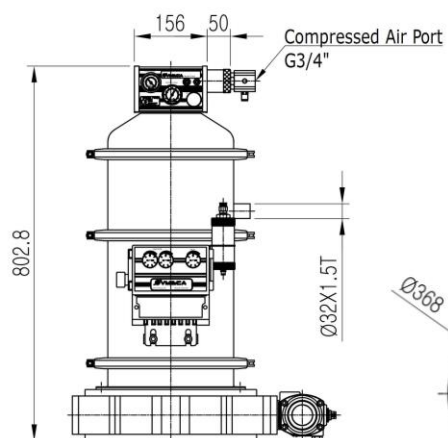
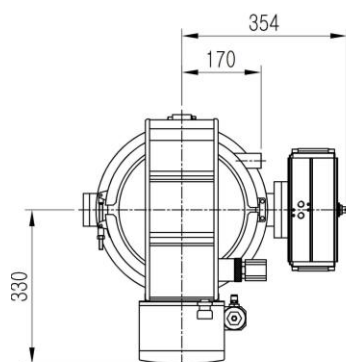
6. Dimension



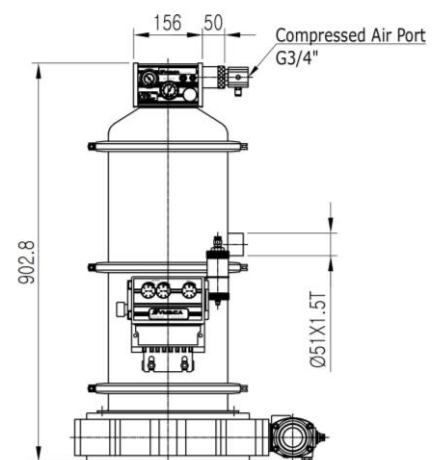
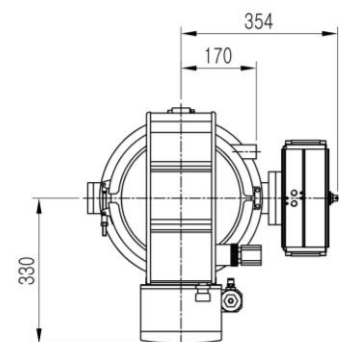
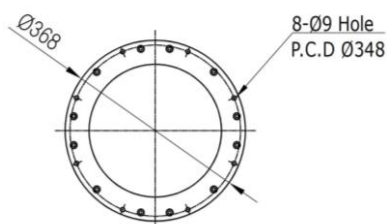
VTC100...M



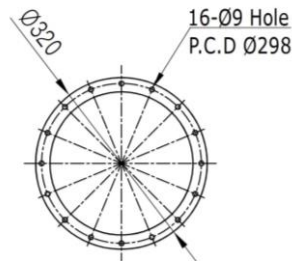
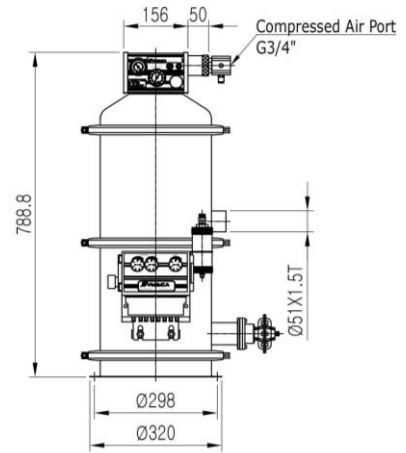
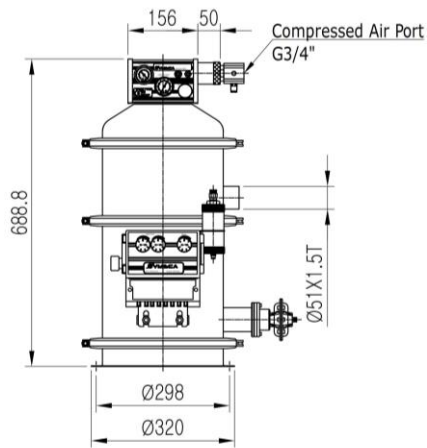
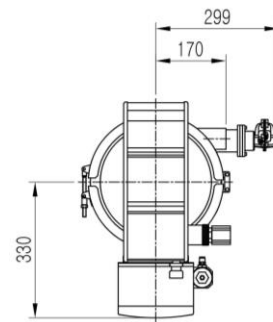
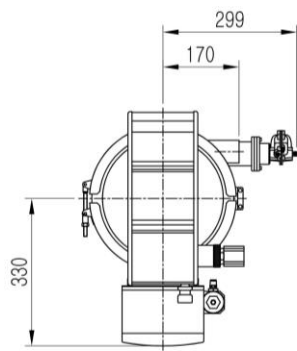
VTC100 L...M



VTC100...MB2

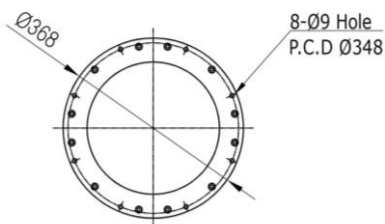
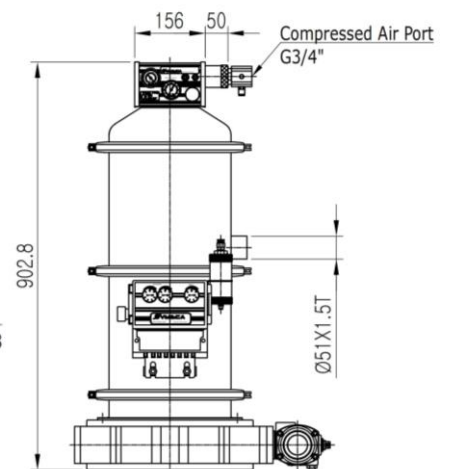
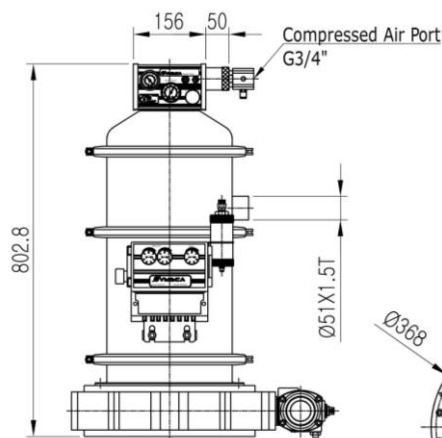
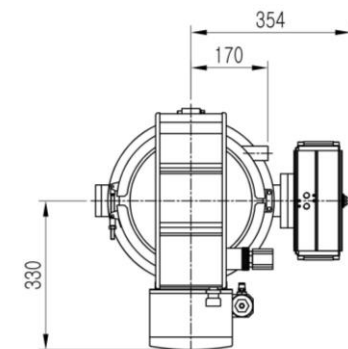
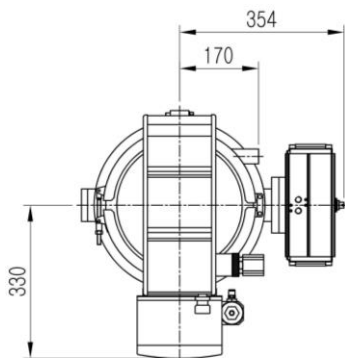


VTC100L...MB2



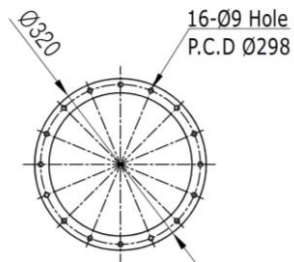
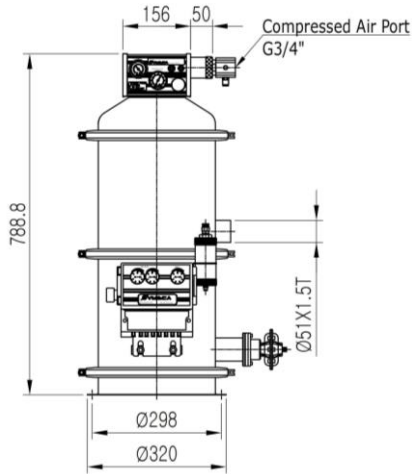
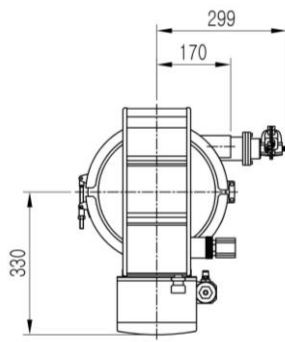
VTC200...M

VTC200 L...M

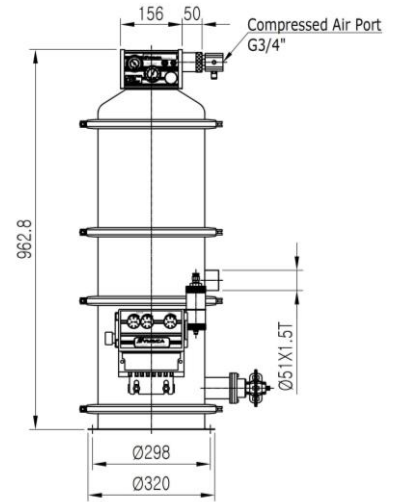
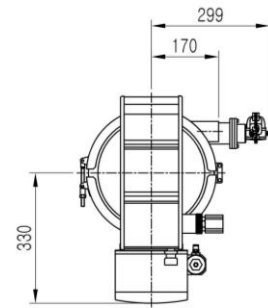


VTC200...MB2

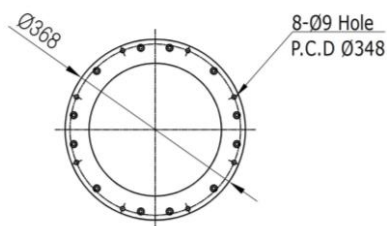
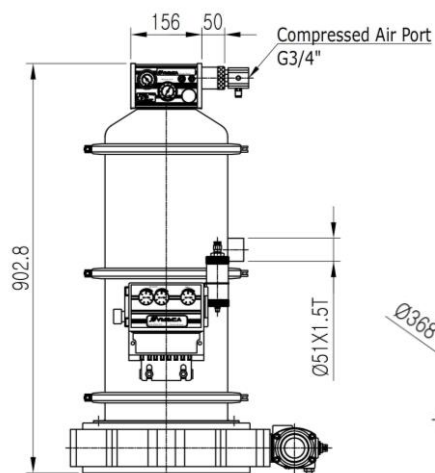
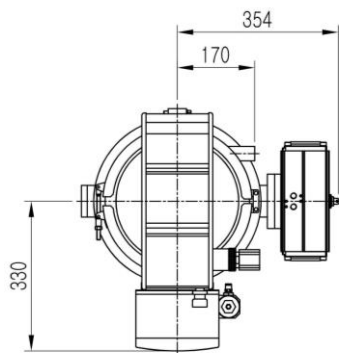
VTC200 L...MB2



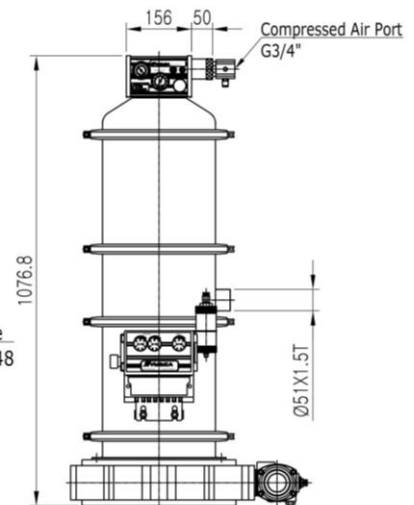
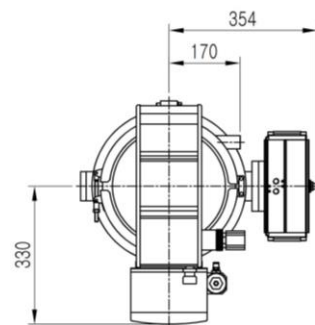
VTC400...M



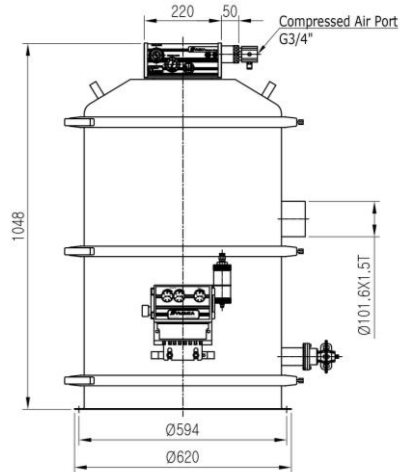
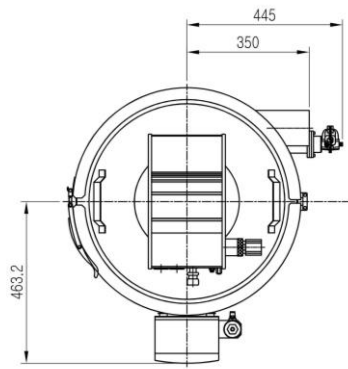
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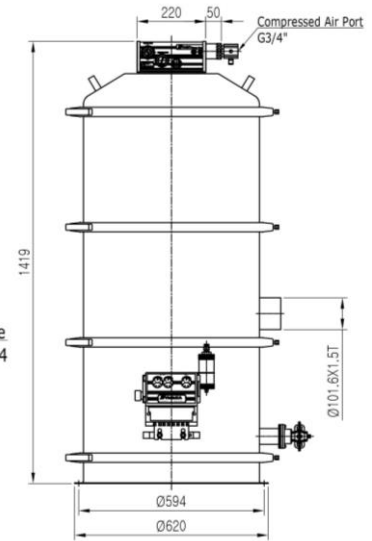
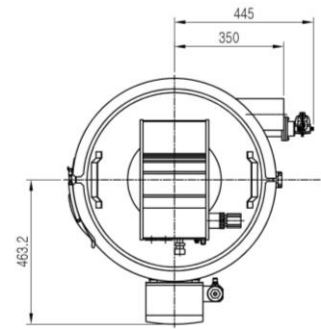
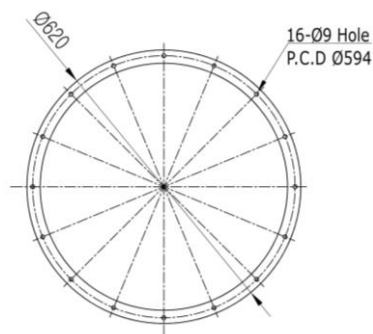
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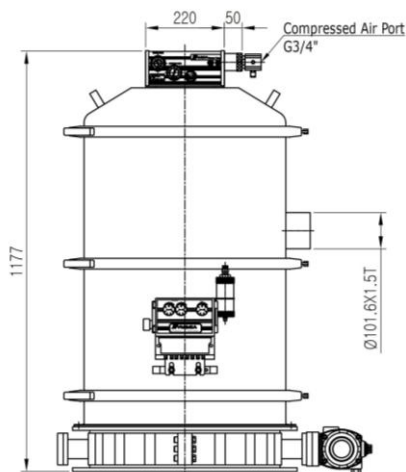
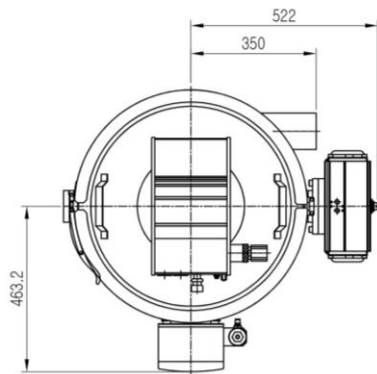
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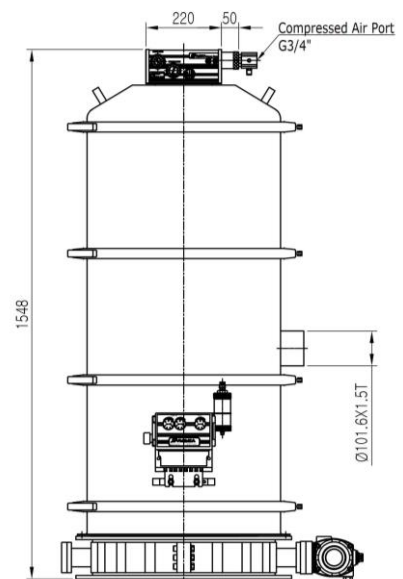
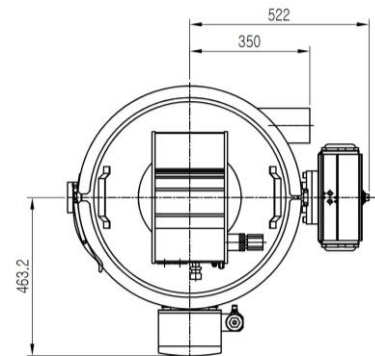
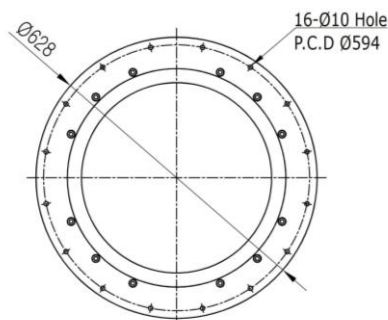
VTC600...M



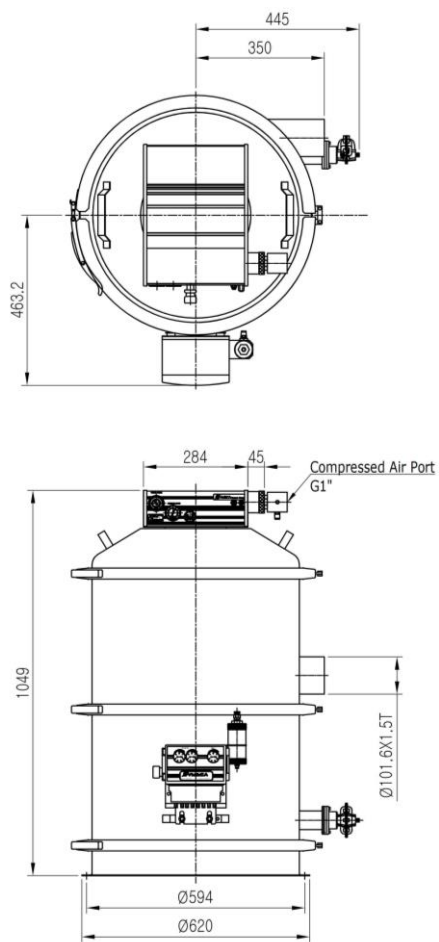
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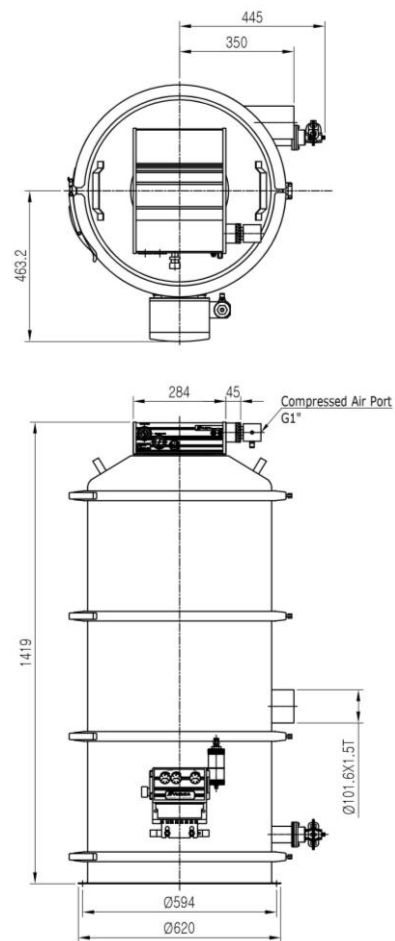
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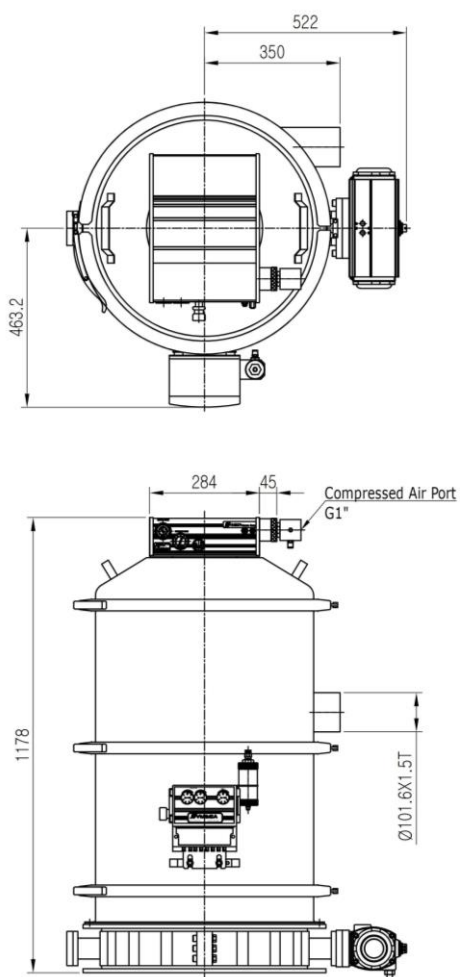
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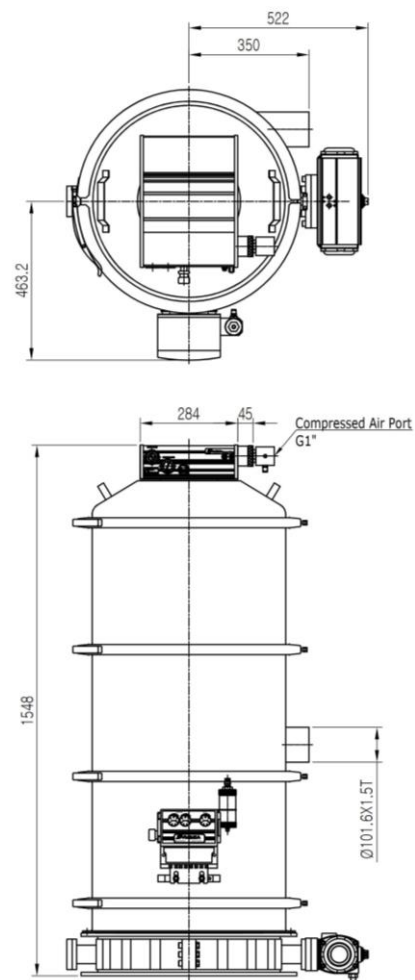
VTC800...M



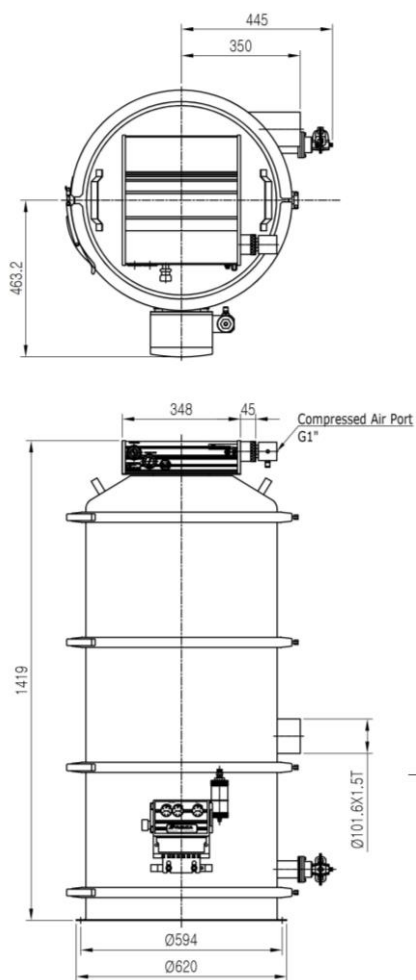
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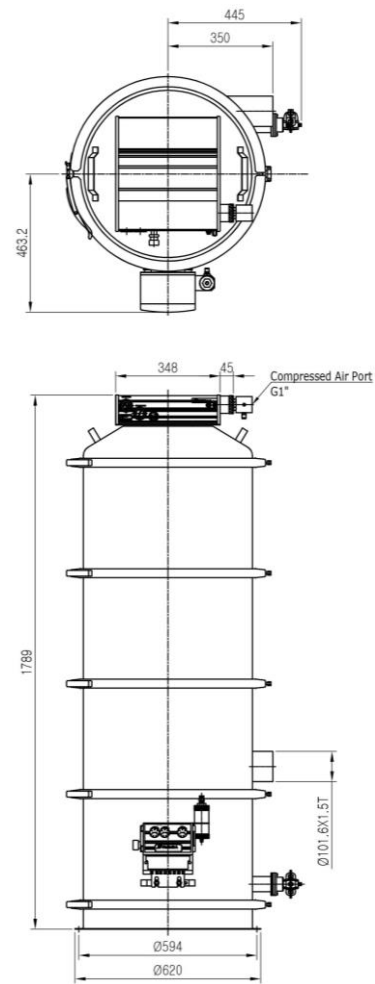
VTC800...MB2



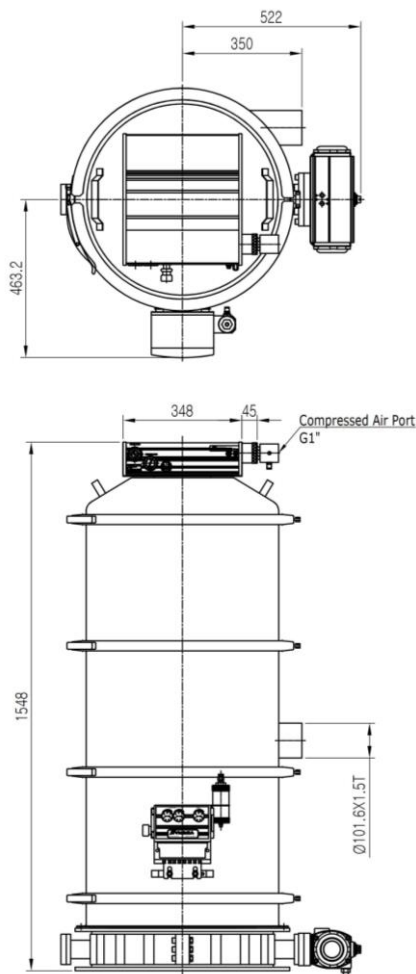
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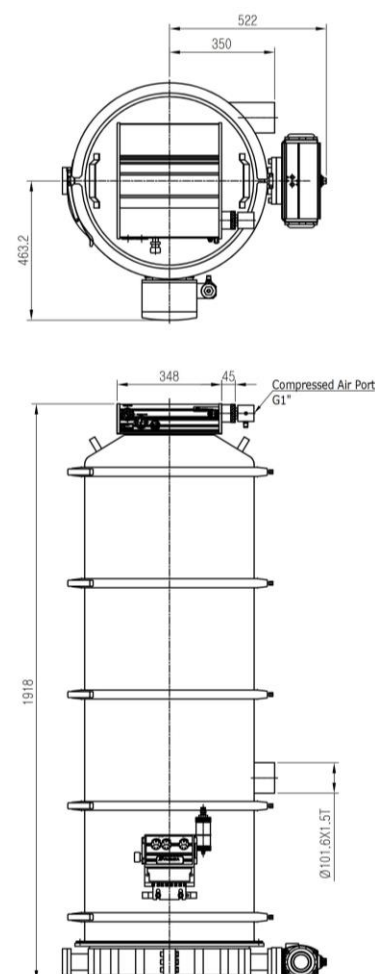
VTC1000...M



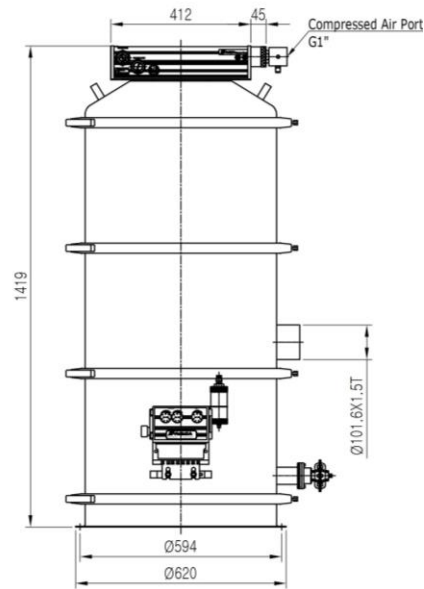
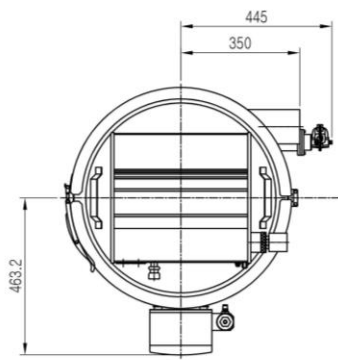
VTC1000 L...M



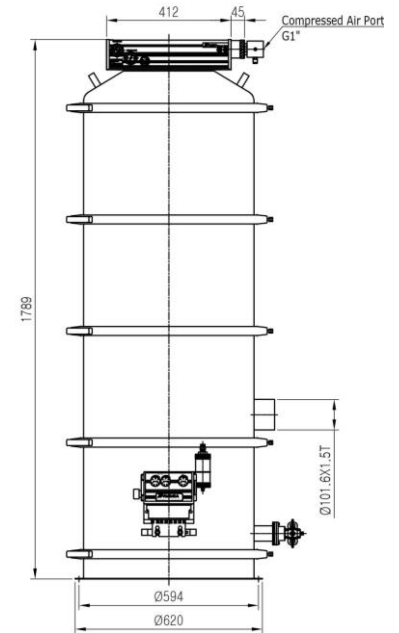
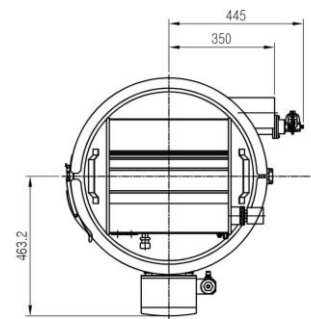
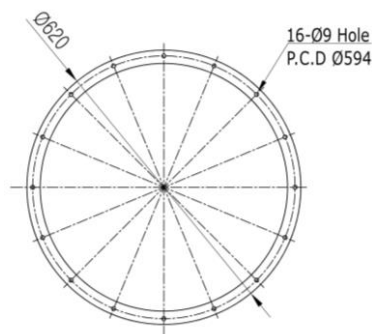
VTC1000...MB2



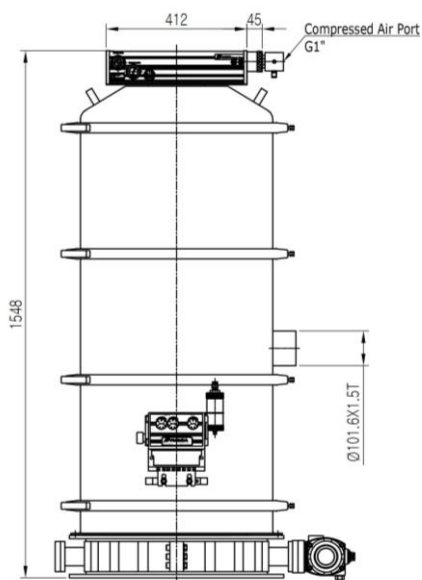
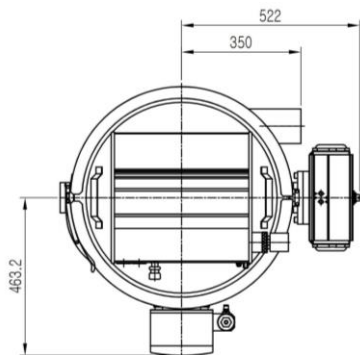
VTC1000 L...MB2



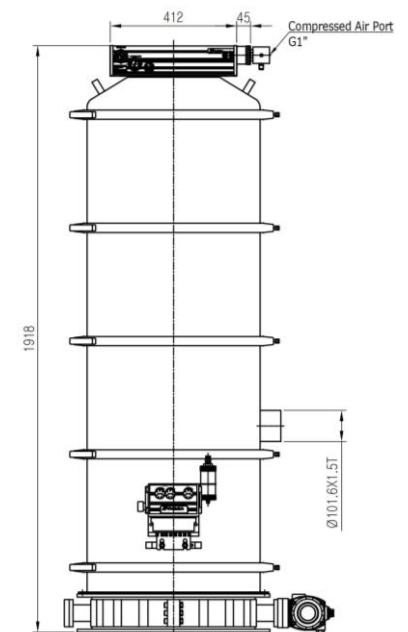
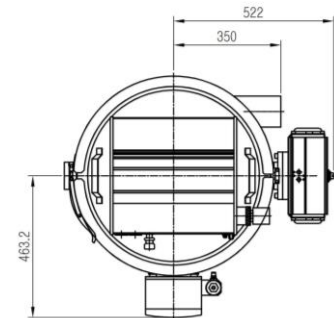
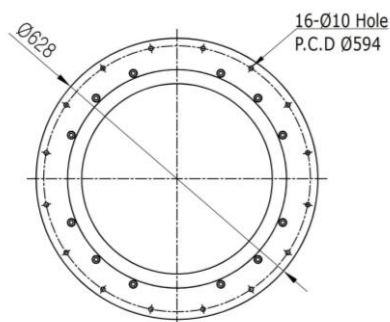
VTC1200...M



VTC1200L...M



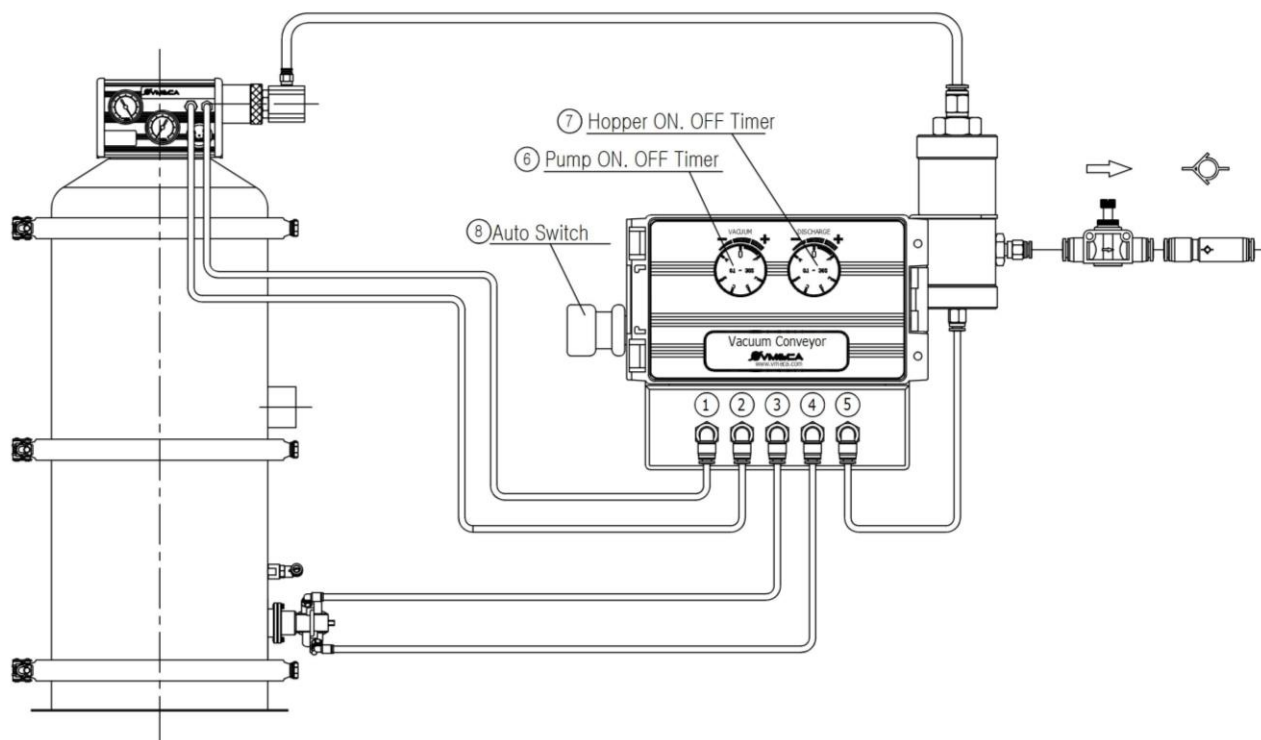
VTC1200...MB2



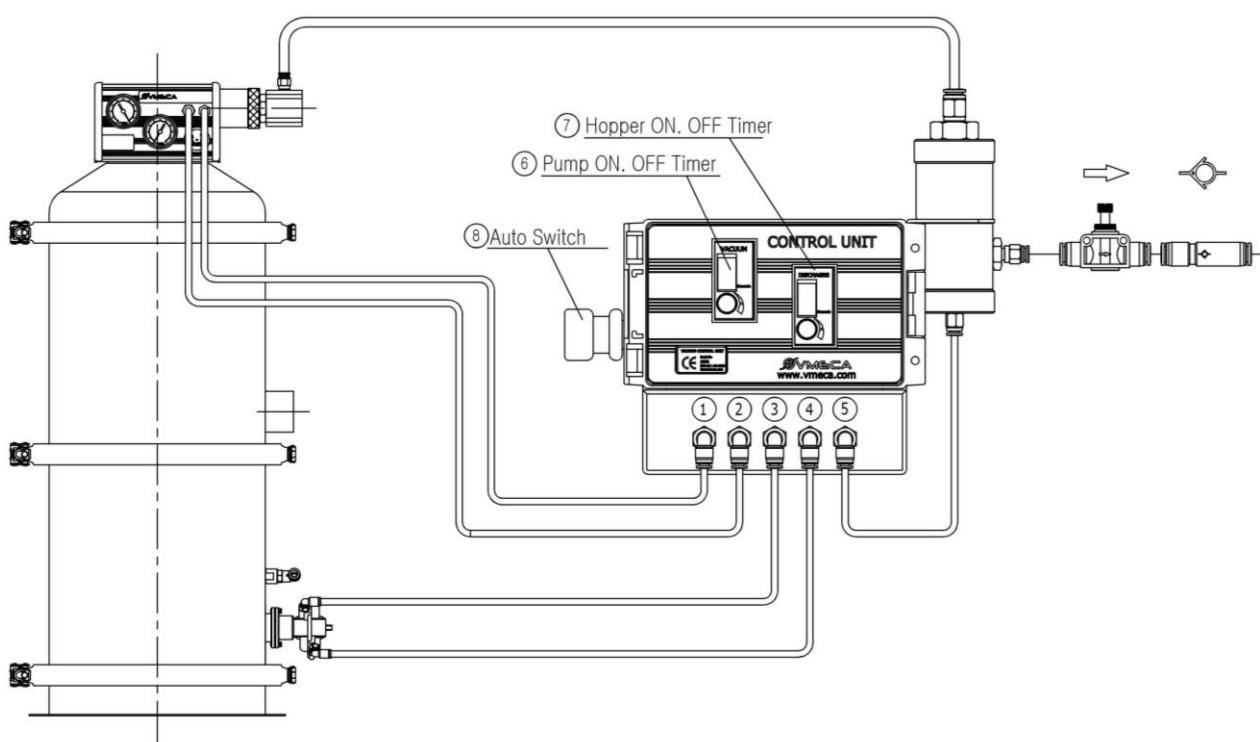
VTC1200L...MB2

7. Installation

Manual of Vacuum Conveyor Control Unit - ACN2, AC20 Hopper Type -



ACN2 Hopper Type



AC20 Hopper Type

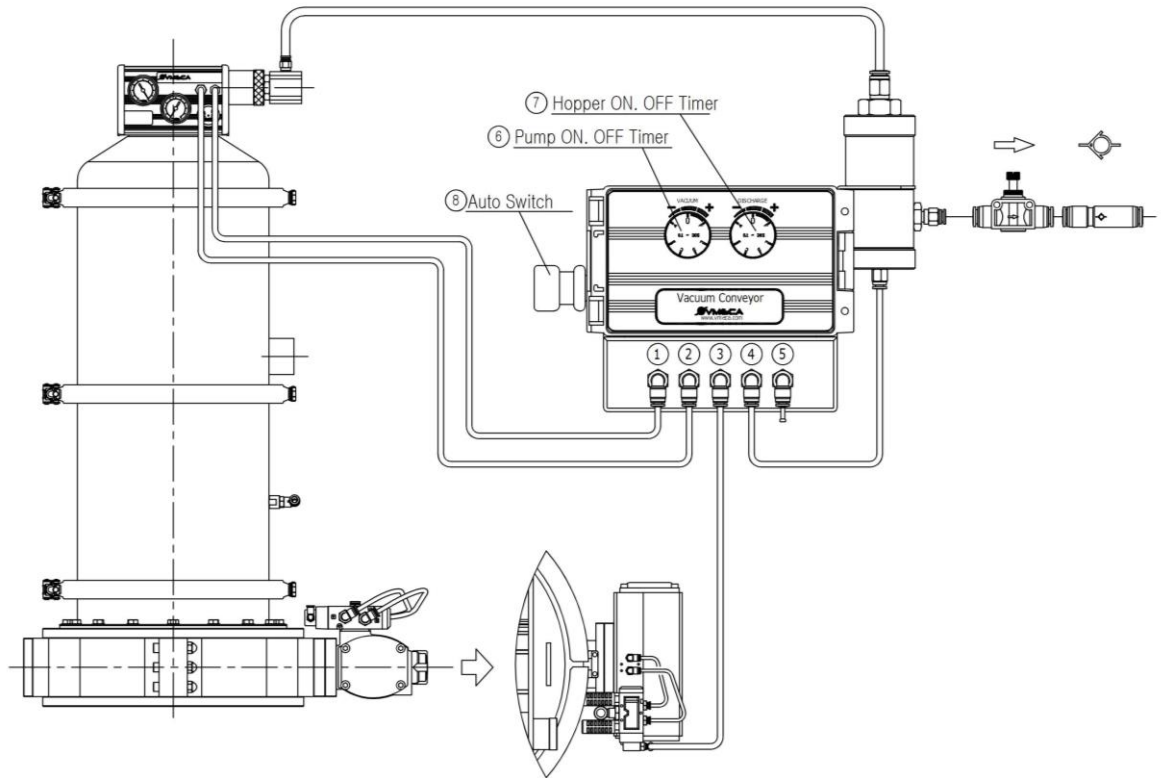
Description of Conveyor control unit (ACN2, AC20 Hopper Type)

- ① P-IN [Pump] – Main Air supplying port(Red)
- ② P-OUT [Pump] – Pump operation Signal output port(Black)
- ③ Signal OUT – Hopper Close Signal (Blue)
- ④ Signal OUT – Hopper Open Signal (Yellow)
- ⑤ Signal OUT [For Blowing Gear] – Operation Signal output port in Blowing equipment (Yellow)
- ⑥ Pump ON/OFF Timer – The suction time can be adjusted from 0.1 second to 30 seconds.
- ⑦ Hopper Open/Close Timer – The exhaust time can be adjusted from 0.1 second to 30 seconds.
- ⑧ Main Switch : Push ON the main switch – Conveyor will operate.

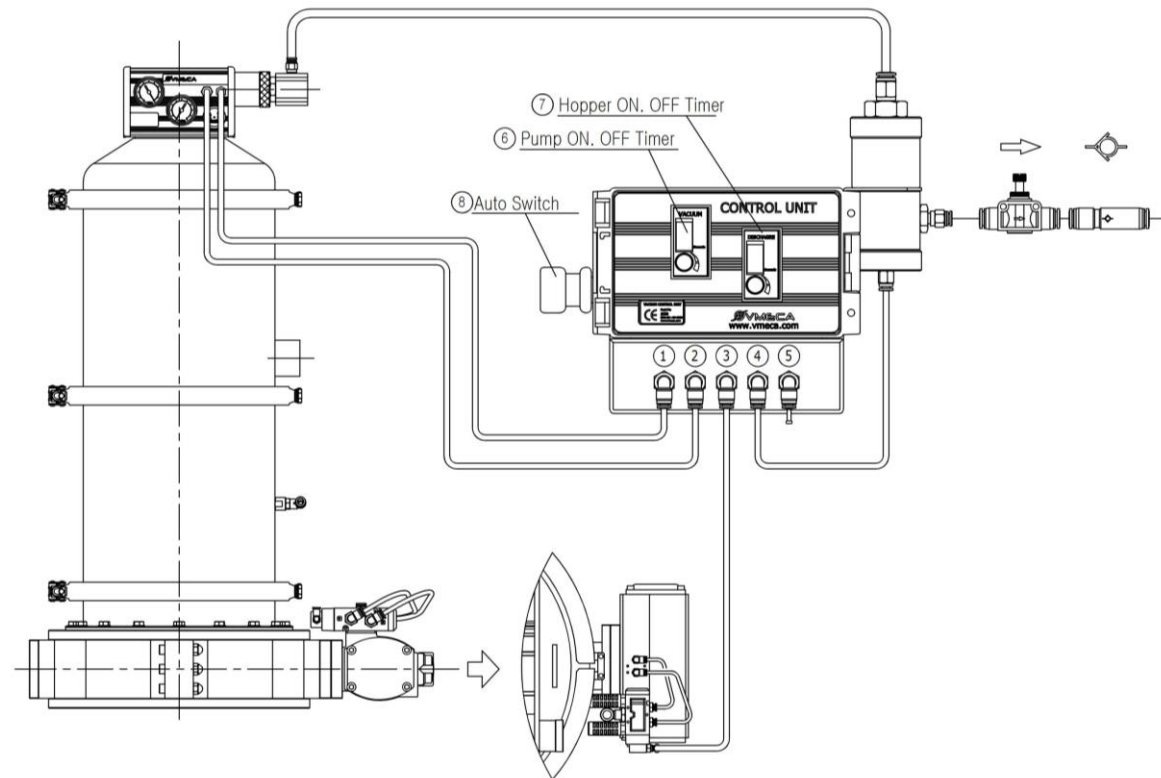
Pull OFF the main switch – Conveyor operation will stop.

- ☞ The cycle time of Conveyor can be adjusted by Pump ON/OFF Timer, Hopper ON/OFF Timer up to one minute.

Manual of Vacuum Conveyor Control Unit - ACN2, AC20 Gate Valve Type -



ACN2 Gate Valve Type



AC20 Gate Valve Type

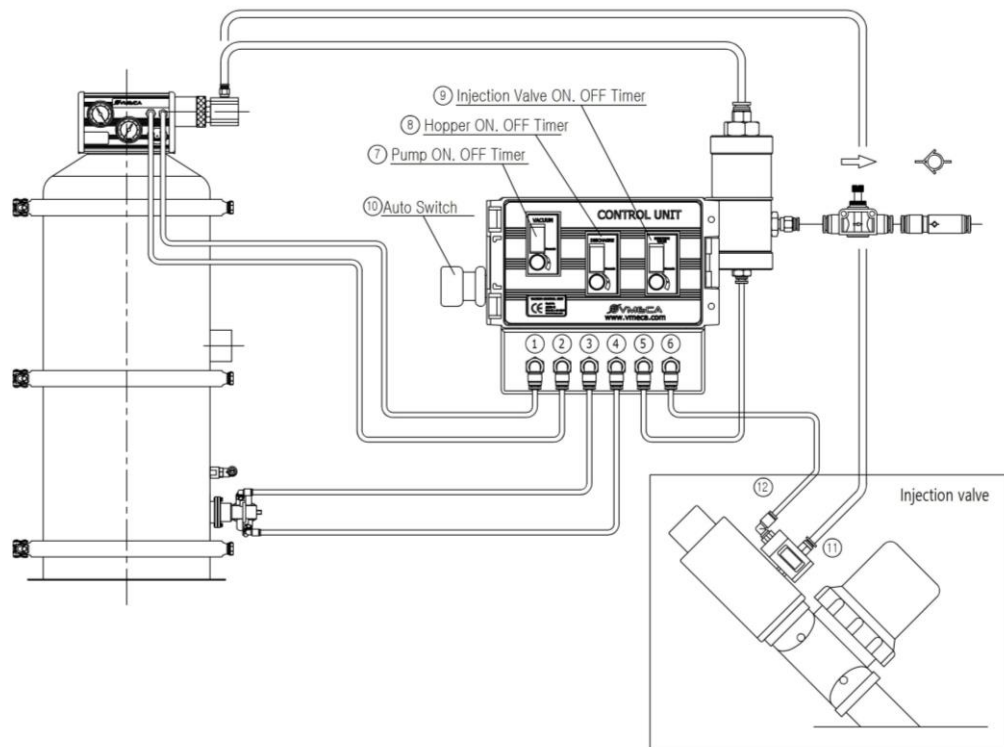
Description of Conveyor control unit (ACN2, AC20 Gate Valve Type)

- ① P-IN [Pump] – Main Air supplying port(Red)
- ② P-OUT [Pump] – Pump operation Signal output port(Black)
- ③ Signal OUT [For Gate Valve Open/Close] – Operation Signal output port in Gate Valve (Yellow)
- ④ Signal OUT [For Blowing Gear] (Option) – Operation Signal output port in Blowing equipment (Yellow)
- ⑥ Pump ON/OFF Timer – The suction time can be adjusted from 0.1 second to 30 seconds.
- ⑦ Hopper open/Close Timer – The exhaust time can be adjusted from 0.1 second to 30 seconds.
- ⑧ Main Switch : Push ON the main switch – Conveyor will operate.

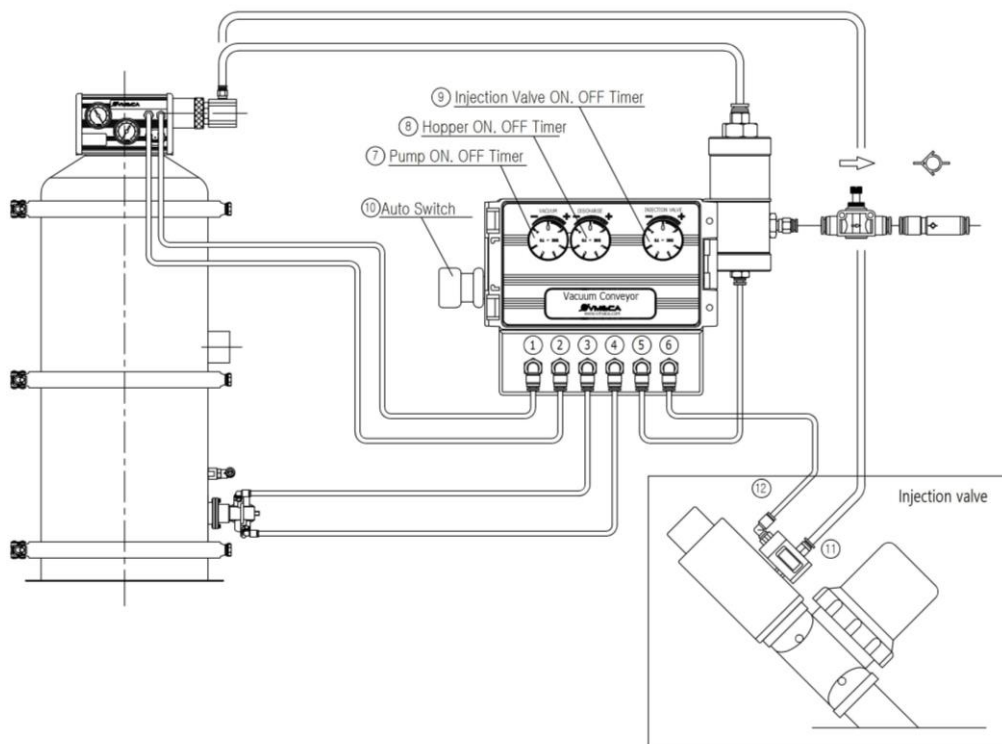
Pull OFF the main switch – Conveyor operation will stop.

- ☞ The cycle time of Conveyor can be adjusted by Pump ON/OFF Timer, Hopper ON/OFF Timer up to one minute.

Manual of Vacuum Conveyor Control Unit - ACN4, AC40 Hopper Type -



ACN4 Hopper Type



AC40 Hopper Type

Description of Conveyor control unit (ACN4, AC40 Hopper Type)

- ① P-IN [Pump] – ON/OFF Air Supplying port (Red)
- ② P-OUT [Pump] Pump operation Signal input port (Black)
- ③ Signal OUT – Hopper Close Signal (Blue)
- ④ Signal OUT – Hopper Open Signal (Yellow)
- ⑤ Signal OUT [For Blowing Gear] (Option) – Operation Signal output port in Blowing equipment (Yellow)
- ⑥ Injection Valve – [Signal OUT]
- ⑦ Pump ON/OFF Timer – The suction time can be adjusted from 0.1 second to 30 seconds.
- ⑧ Hopper open/Close Timer – The exhaust time can be adjusted from 0.1 second to 30 seconds.
- ⑨ Injection Valve Timer – The time from Pump operation to Injection Valve operation can be adjusted from 0.1 to 30 seconds (When Pump is off, Injection valve also stops)

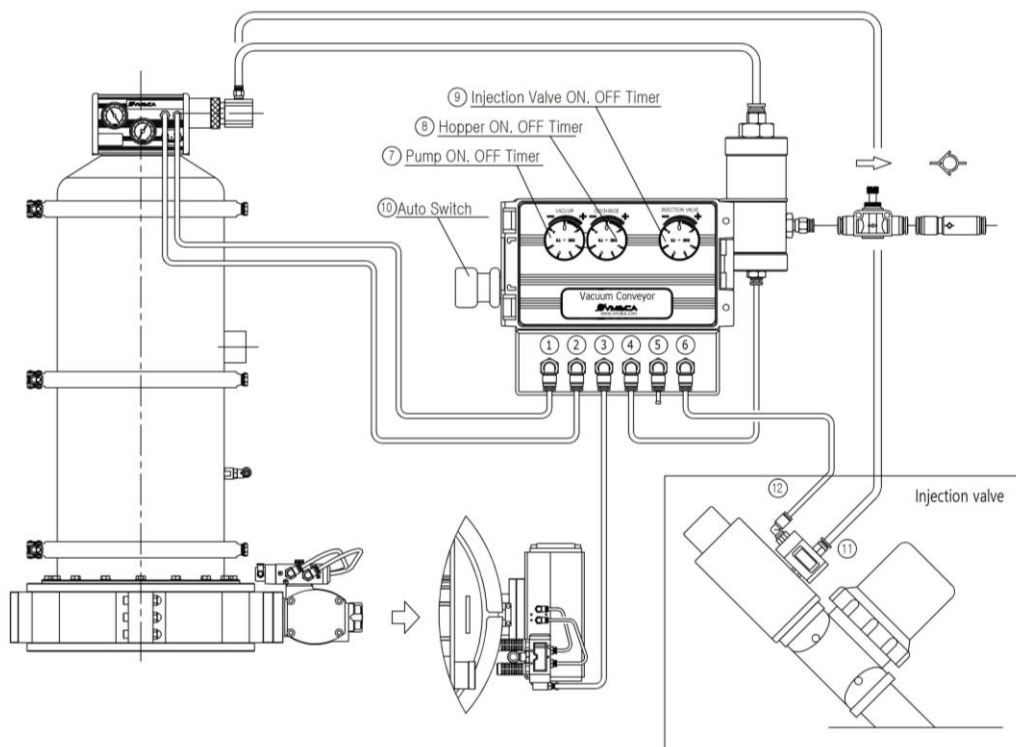
Example: Vacuum Time 10sec / Injection Time 5sec : The suction continues for 10 seconds. And 5 seconds after the suction begins, Injection valve operates until the end of suction.

- ⑩ Main Switch : Push ON the main switch – Conveyor will operate.

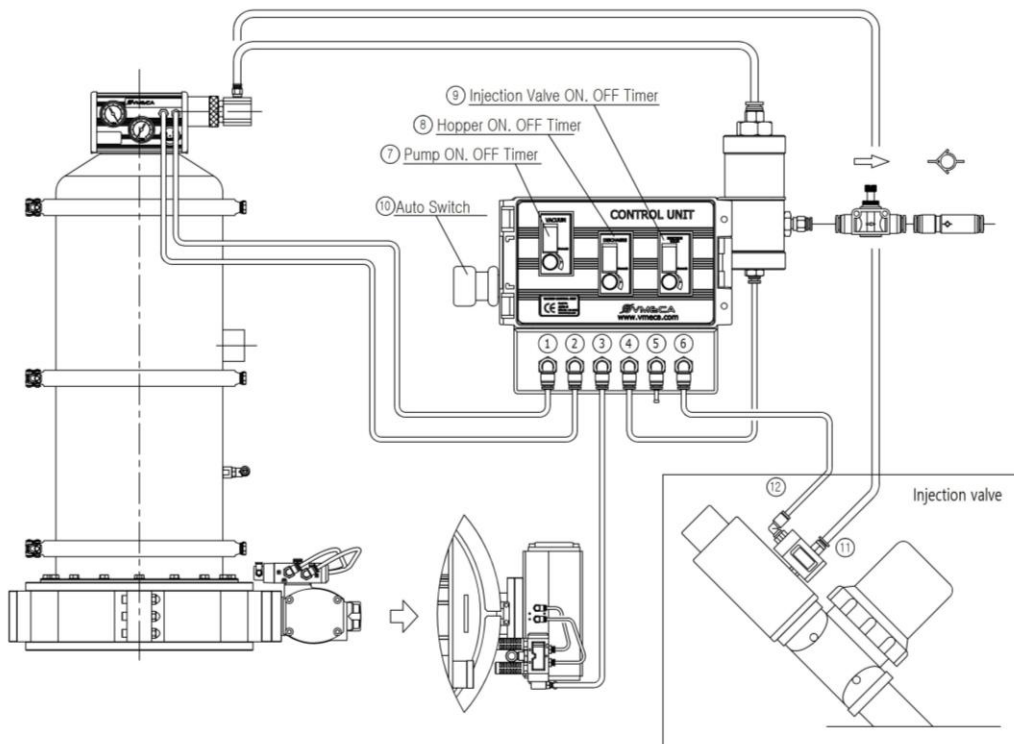
Pull OFF the main switch – Conveyor operation will stop.

- ☞ The cycle time of Conveyor can be adjusted by Pump ON/OFF Timer, Hopper ON/OFF Timer up to one minute.

Manual of Vacuum Conveyor Control Unit - ACN4, AC40 Gate Valve Type -



ACN4 Gate Valve Type



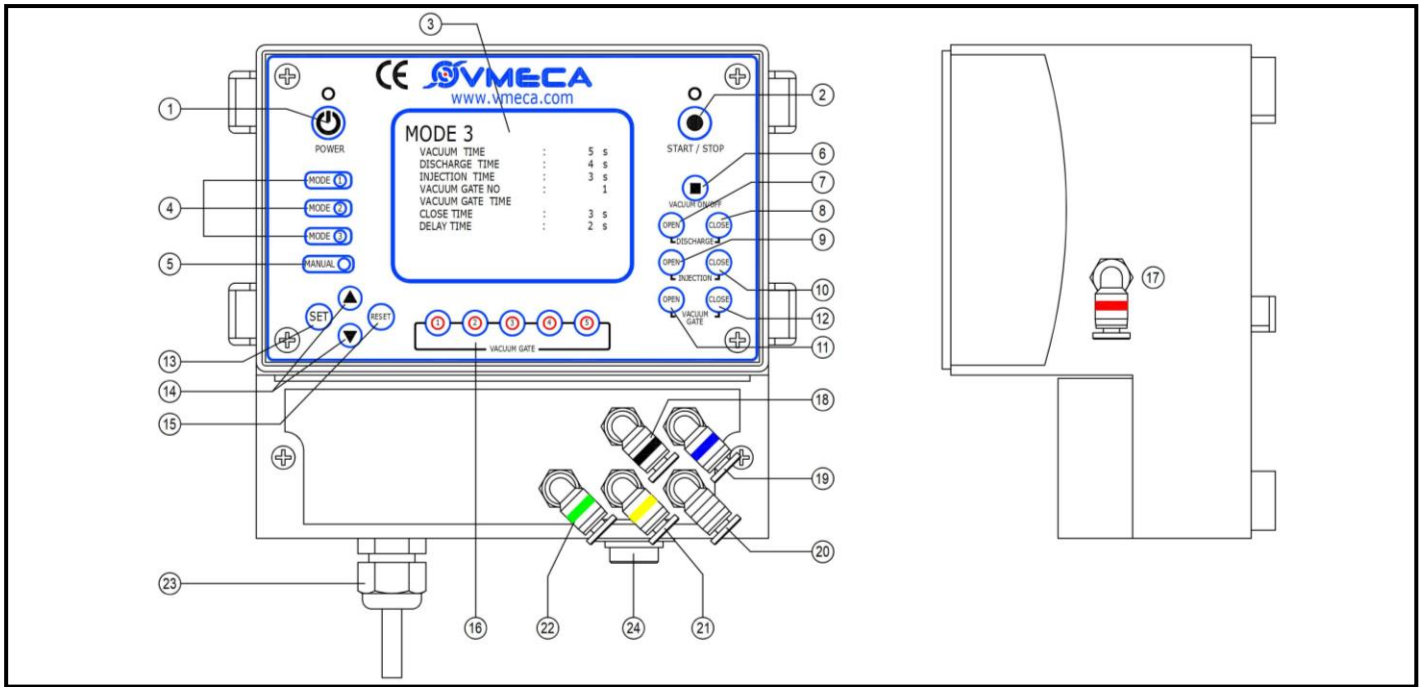
AC40 Gate Valve Type

Description of Conveyor control unit (ACN4, AC40 Gate Valve Type)

- ① P-IN [Pump] – ON/OFF Air Supplying port (Red)
- ② P-OUT [Pump] Pump operation Signal input port (Black)
- ③ Signal OUT [For Gate Valve Open/Close] – Operation Signal output port in Gate Valve (Yellow)
- ④ Signal OUT [For Blowing Gear] (Option) – Operation Signal output port in Blowing equipment (Yellow)
- ⑥ Injection Valve – [Signal OUT]
- ⑦ Pump ON/OFF Timer – The suction time can be adjusted from 0.1 second to 30 seconds.
- ⑧ Hopper open/Close Timer – The exhaust time can be adjusted from 0.1 second to 30 seconds.
- ⑨ Injection Valve Timer – The time from Pump operation to Injection Valve operation can be adjusted from 0.1 to 30 seconds (When Pump is off, Injection valve also stops)
Example: Vacuum Time 10sec / Injection Time 5sec : The suction continues for 10 seconds. And 5 seconds after the suction begins, Injection valve operates until the end of suction.
- ⑩ Main Switch : Push ON the main switch – Conveyor will operate.
Pull OFF the main switch – Conveyor operation will stop.
☞ The cycle time of Conveyor can be adjusted by Pump ON/OFF Timer, Hopper ON/OFF Timer up to one minute.

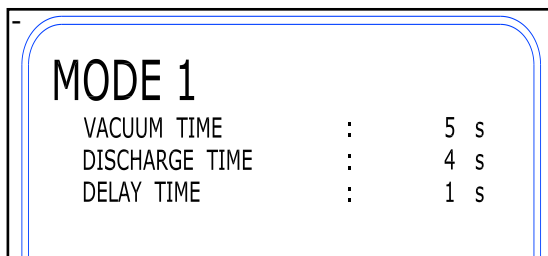
Manual of Vacuum Conveyor Control Unit

- EC1, 2 TYPE -



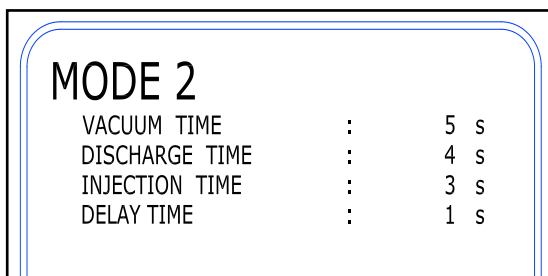
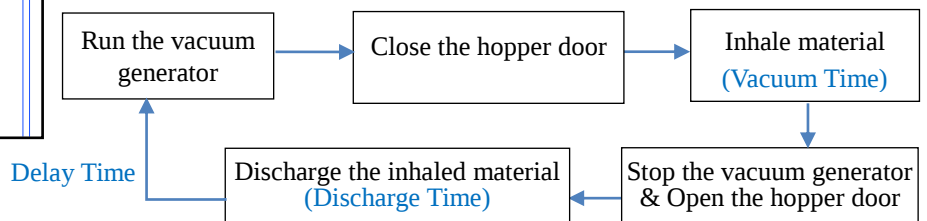
Description corresponds with numbers (EC1, 2 Type)

- ① ON/OFF Switch(for EC2, Power on without Power ON/OFF Button)
- ② Program logic Start/Stop Button Switch - *The mode ⑬ and time ⑭ must be set first.*
- ③ Display
- ④ MODE Selection Switch .



MODE 1 : Basic mode with Vacuum Time, Discharge Time, and Delay Time.

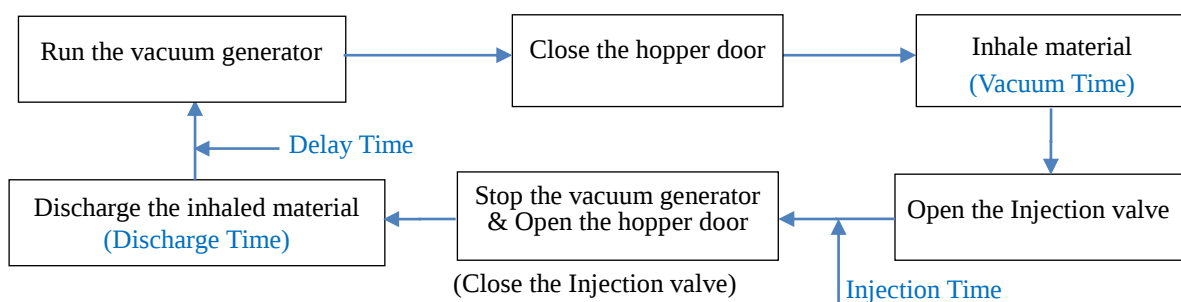
Operation sequence



MODE 2 : Basic mode plus Injection Time.

▪ **Injection Valve:** As the conveyor works intermittently the material can be stuck at the bottom of the vertical part of the conveying pipe when the conveyor/pump stops. You may solve this problem with an Injection Valve that can be opened to let in outside air before the running the conveyor.

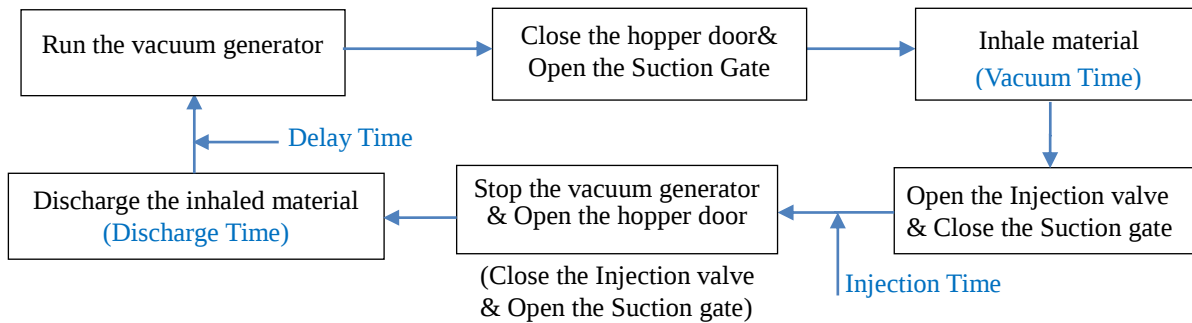
Operation sequence



MODE 3		
VACUUM TIME	:	5 s
DISCHARGE TIME	:	4 s
INJECTION TIME	:	3 s
VACUUM GATE NO	:	1
VACUUM GATE TIME	:	
CLOSE TIME	:	3 s
DELAY TIME	:	2 s

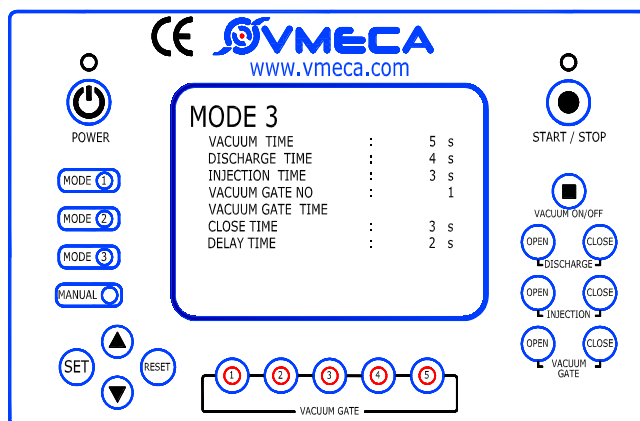
MODE 3 : Mode 2 plus an option of adding up to 5-Suction Gate.

▪ Operation sequence

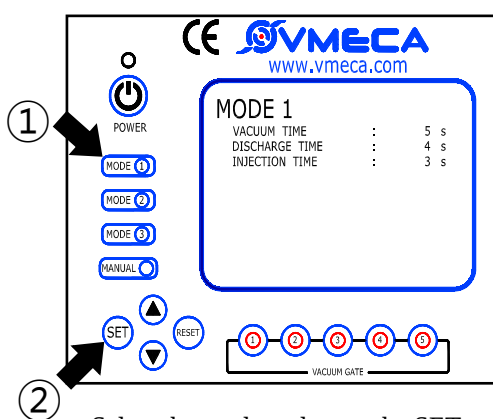


- ⑤ Manual Mode Switch
- ⑥ Vacuum ON/OFF Switch – In manual mode
- ⑦ Hopper Door OPEN Switch – In manual mode.
- ⑧ Hopper Door CLOSE Switch –In manual mode.
- ⑨ Injection Valve OPEN Switch – In manual mode.
- ⑩ Injection Valve CLOSE Switch – In manual mode.
- ⑪ Suction Gate OPEN Switch – In manual mode.
- ⑫ Suction Gate CLOSE Switch – In manual mode.
- ⑬ SET Switch – Setting an operation time for the automatic model.
- ⑭ UP & DOWN ADJUST Switch – Adjusting the operation time for the automatic mode.
- ⑮ System RESET Switch.
- ⑯ Suction Gate Selection Switch – In manual mode.
- ⑰ IN(Red) - Main Air Supply Port
- ⑱ OUT (Black): Running the vacuum generator
- ⑲ OUT (Blue): Opening & Closing a Hopper Open
- ⑳ OUT (White): Running a Blow-Off function
- ㉑ OUT (Yellow): Running an Injection Valve
- ㉒ OUT (Green): Opening & Closing Suction Gate(s)
- ㉓ Power Cable - (+):Brown, (-):Blue
- ㉔ Level Sensor Connector

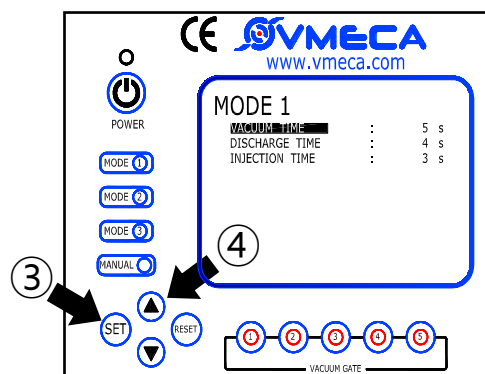
※ How to set up the operation time.



1. Turn on the power.
2. Select the desired MODE with the 4) MODE selection Switch.
3. After selecting the MODE, press the SET button for 2~3 seconds.
4. The cursor will appear as VACUUM TIME in the display with sound, and you can move the cursor to the desired function with the UP and DOWN buttons next to the SET button.
5. After moving the cursor to the desired function, use the UP and DOWN buttons to set the time and press the SET button. (*Time can be set by one second)
6. After setting the time for all functions, press the SET button for 2~3 seconds to exit the MODE setting and operate the Conveyor with the START/STOP button.

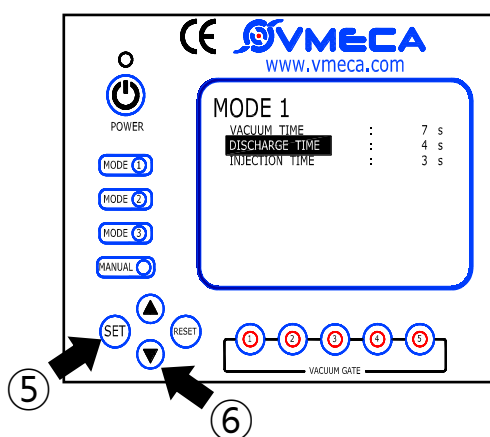


Select the mode and press the SET button for 2~3 seconds.

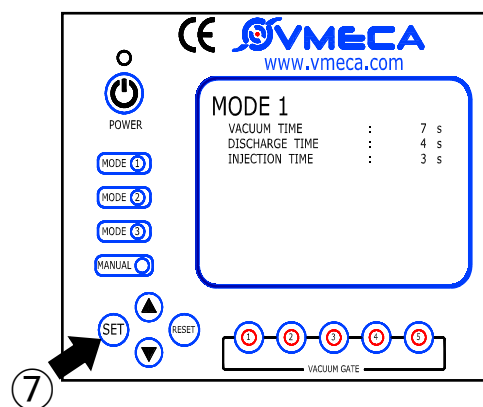


When the cursor appears and press the SET button once again, the fixed time (number) blinks. Then, set the time with the ▲ and ▼ buttons.

Ex) Press the ▲ button twice and it will go up 2 seconds.



After setting the time, press the SET button again to return to the previous step. To set other functions, move the cursor with the ▲ and ▼ buttons and set the time as ③ and ④.

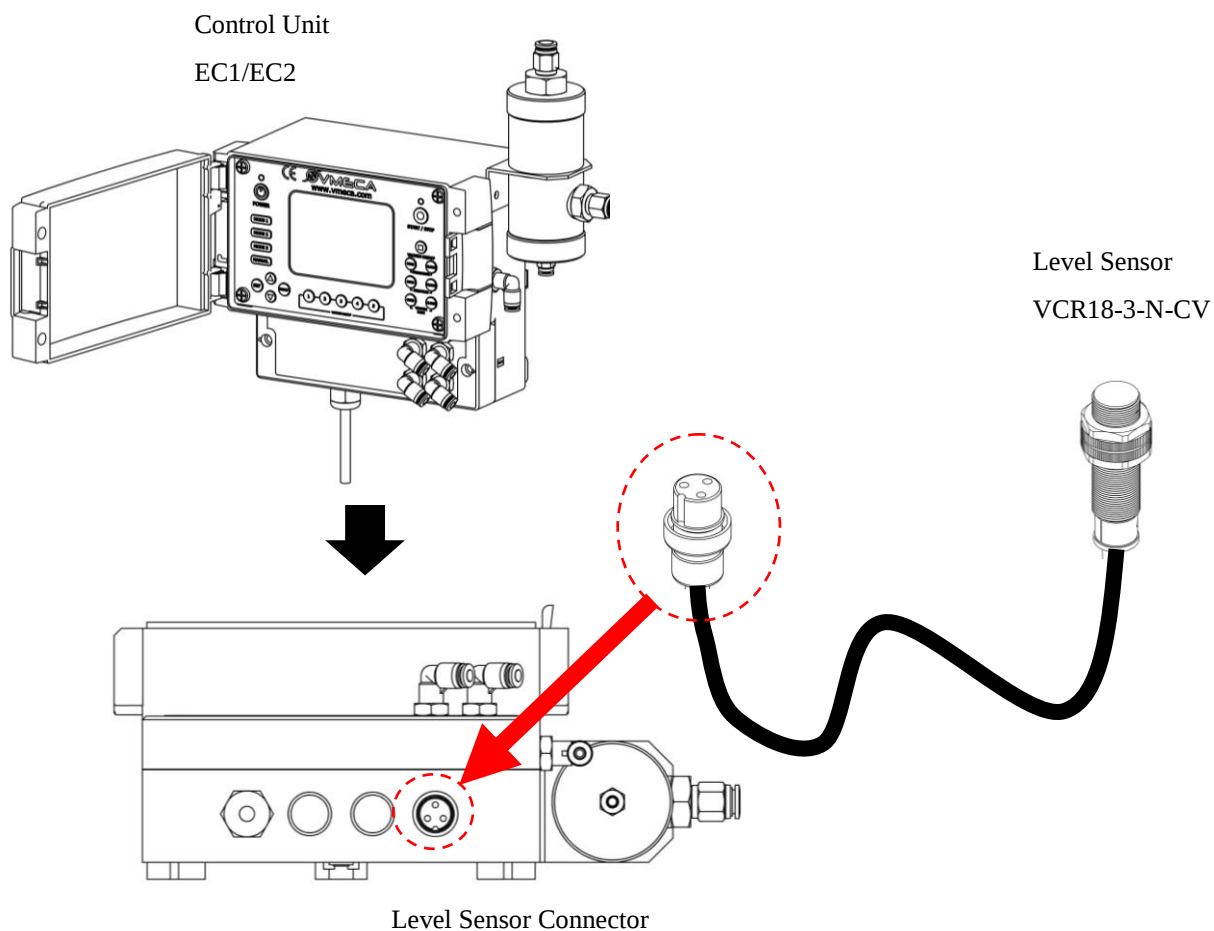


After setting the time for all the functions, press the SET button for 2 ~ 3 seconds to finish the setting, and then operate the Conveyor.

※ How it works in MANUAL MODE

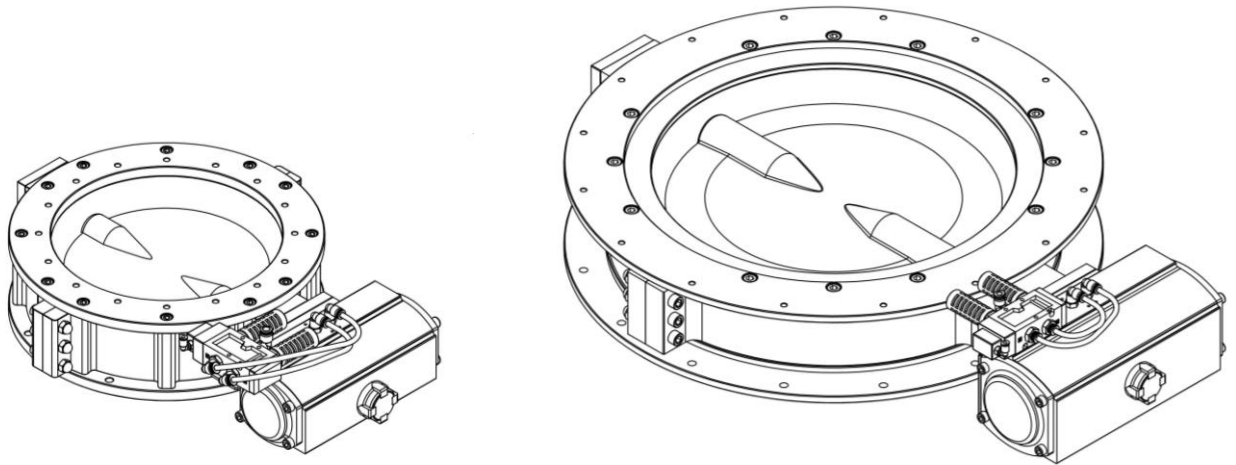
1. Turn on the power.
 2. Press the MANUAL button.
 3. Press the button at the bottom right to activate the function.
- * You don't have to press the START/STOP button in MANUAL MODE.

※ EC1/EC2 - Level Sensor How to connect (Option)



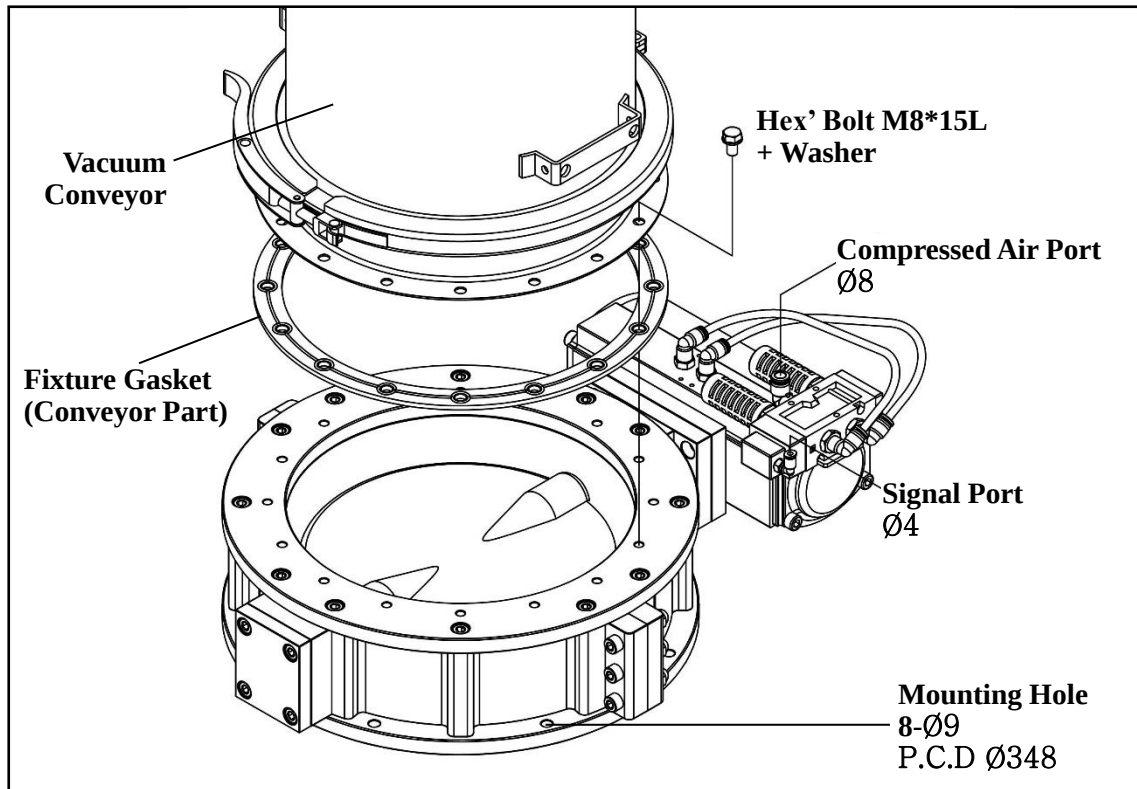
- When applying the Level Sensor (option), since the Level Sensor VCR18-3-N-CV is equipped with a connector, connect the Level Sensor connector (male) to the Level Sensor connector (female) located at the bottom of the Control Unit EC1/EC2, then use it. When connecting, check the pin alignment before inserting, and then tighten the locking nut of the Level Sensor connector to secure it.

Manual of Gate Valve

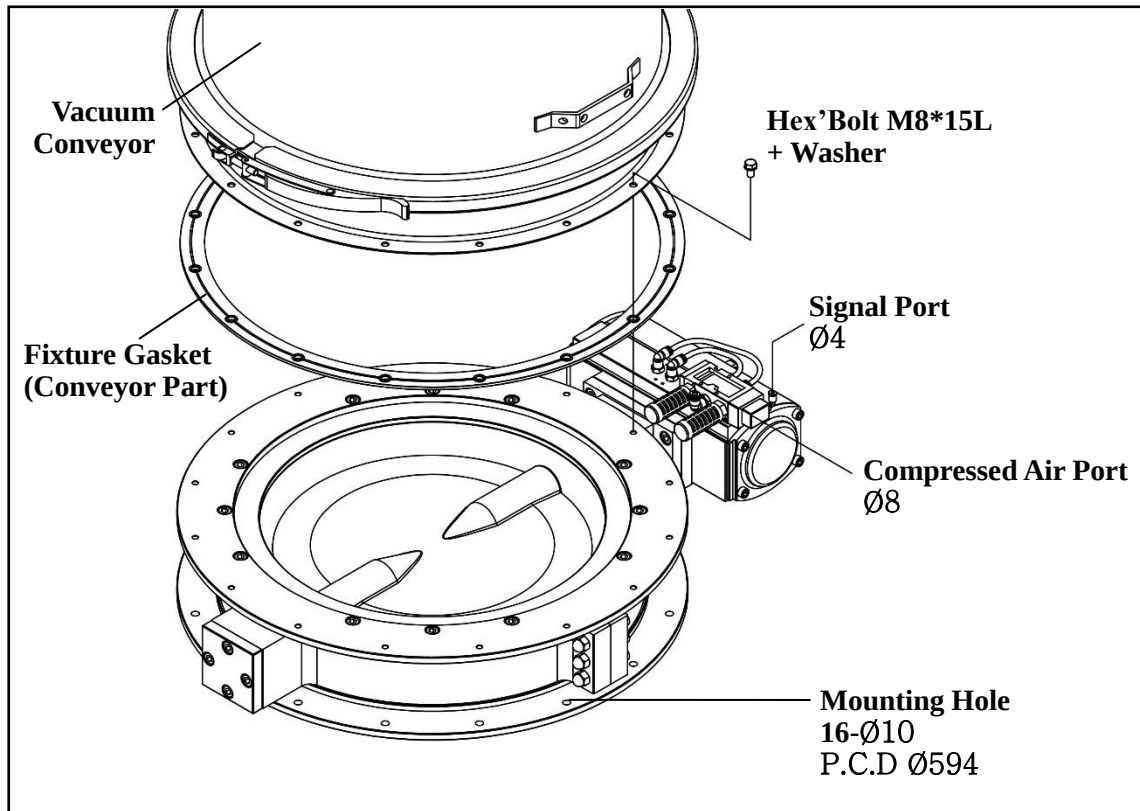


VMECA's Gate Valve is a product that can open and close the Disk at 90° by operating the a pneumatic actuator. Gate Valve is installed in the Vacuum Conveyor. It is used to transport (convey) the materials such as powder and grains inside of the Vacuum Conveyor using a vacuum/ suction flow – and the material is charged inside of the chamber – and they are discharged to outside by open the Gate Valve.

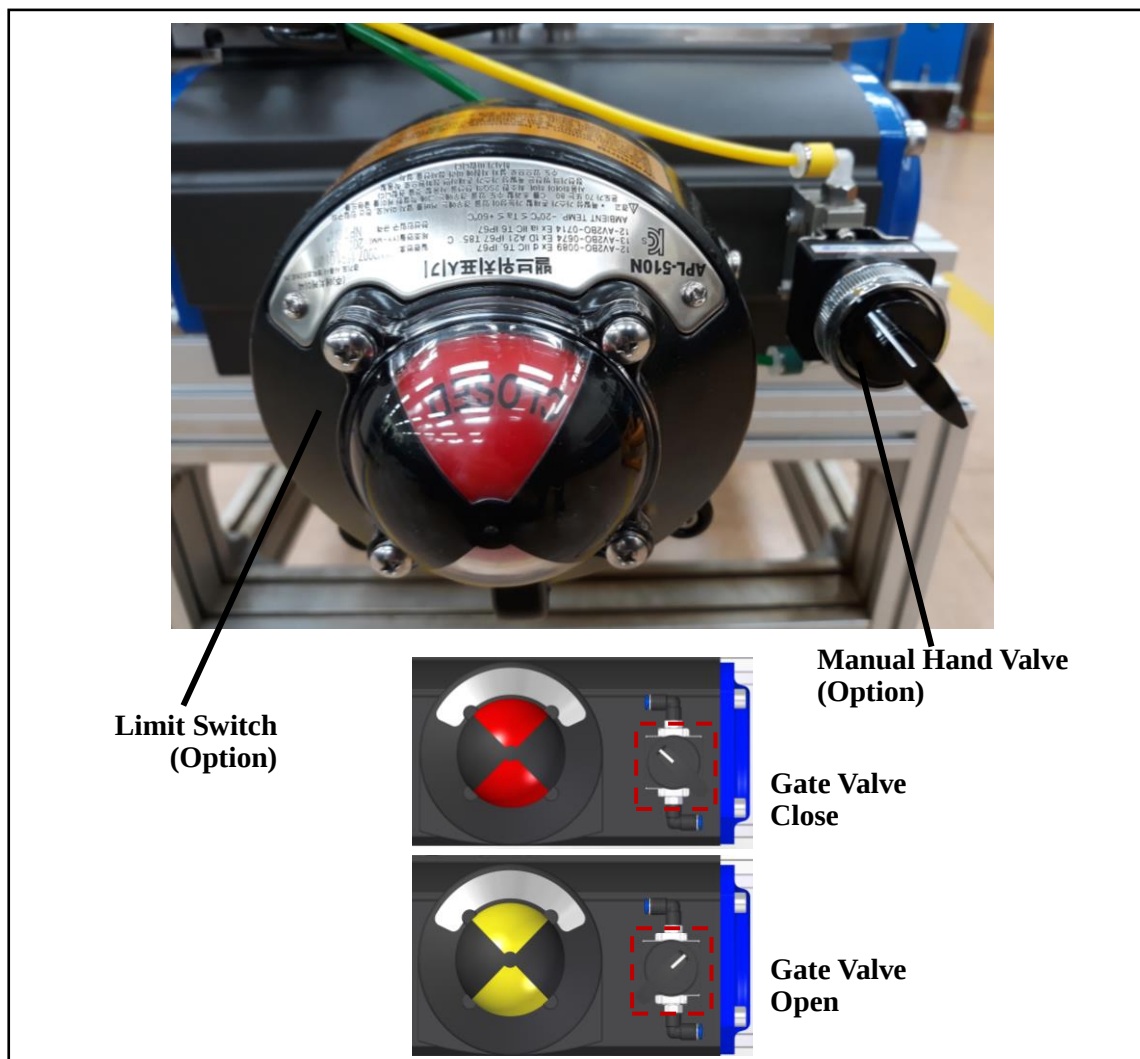
- VMS100-GS



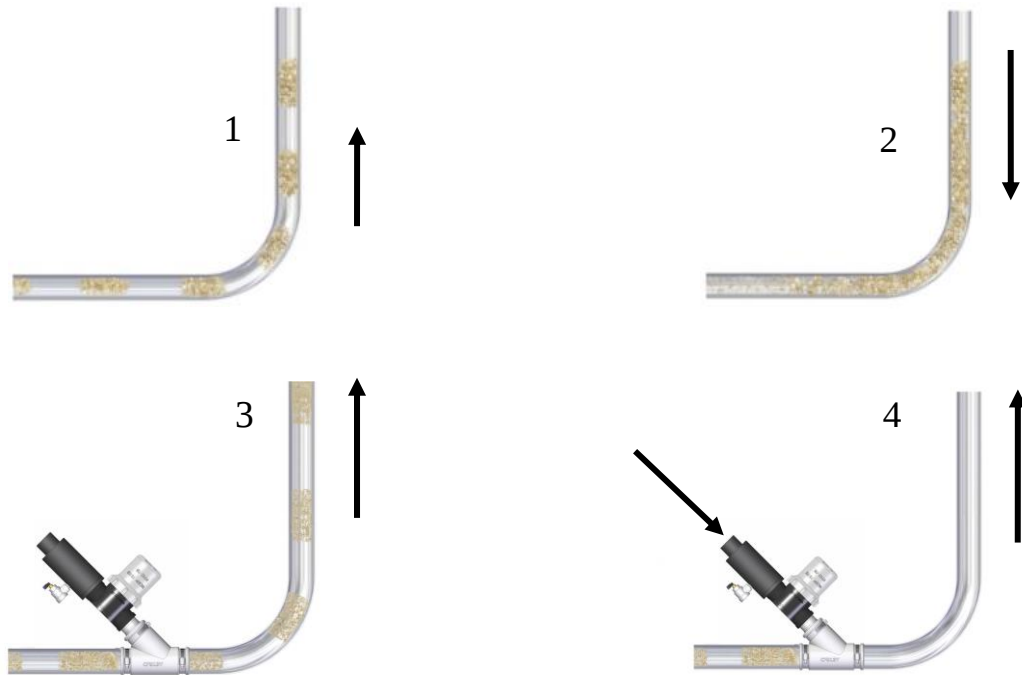
- VMS600-GS



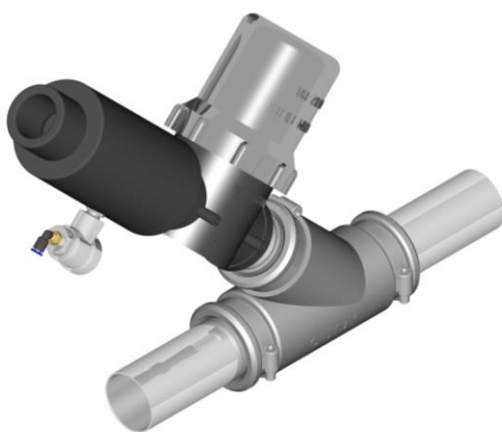
- How it works in Manual Valve(Optional)



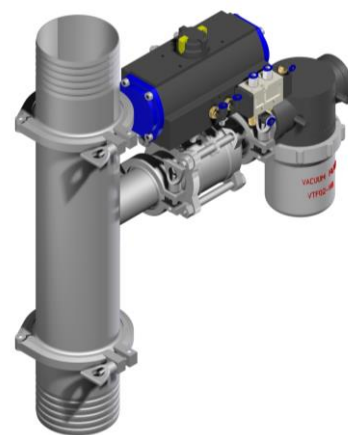
Manual of Injection Valve



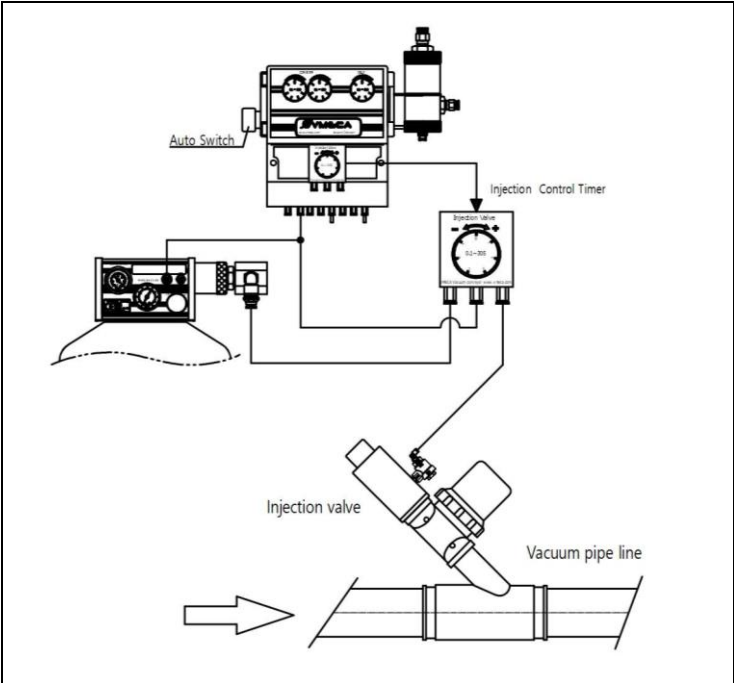
An Injection Valve is necessary when there is a 90 degree turn. The reason for this is because, if the material is transferred and drops down to the bottom, it runs into dangers of clogging the pipeline. In order to prevent this, an injection valve must be installed near the bend to allow the atmospheric air to come in and discharge the pipeline of any build ups.



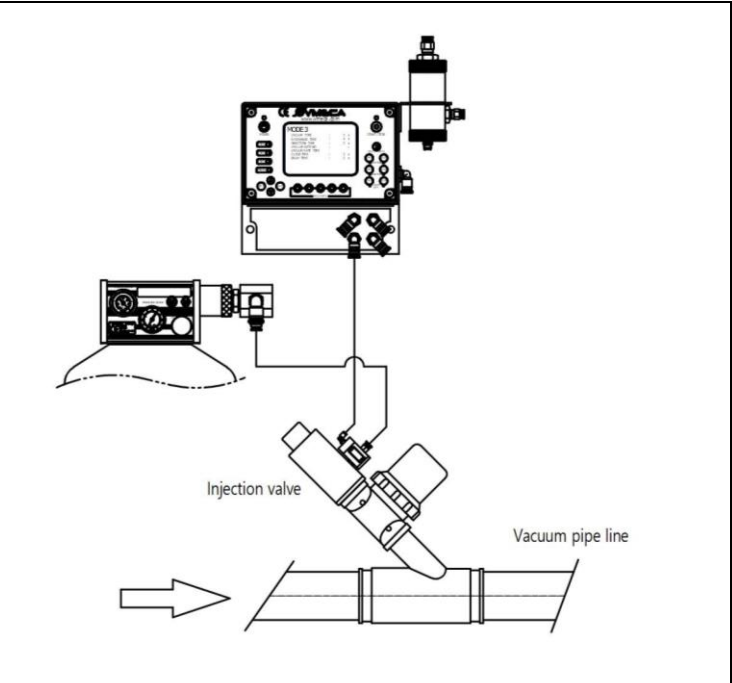
VTC100/400L



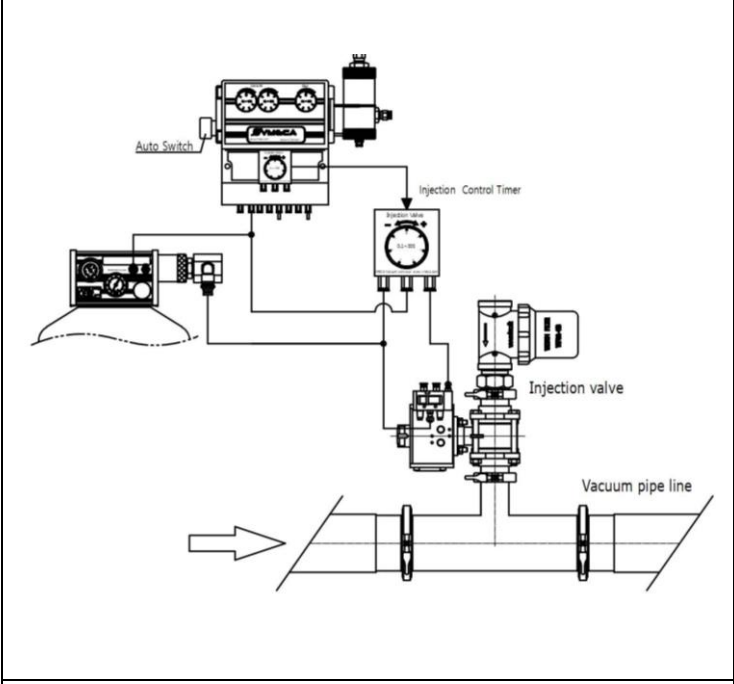
VTC600/1200L



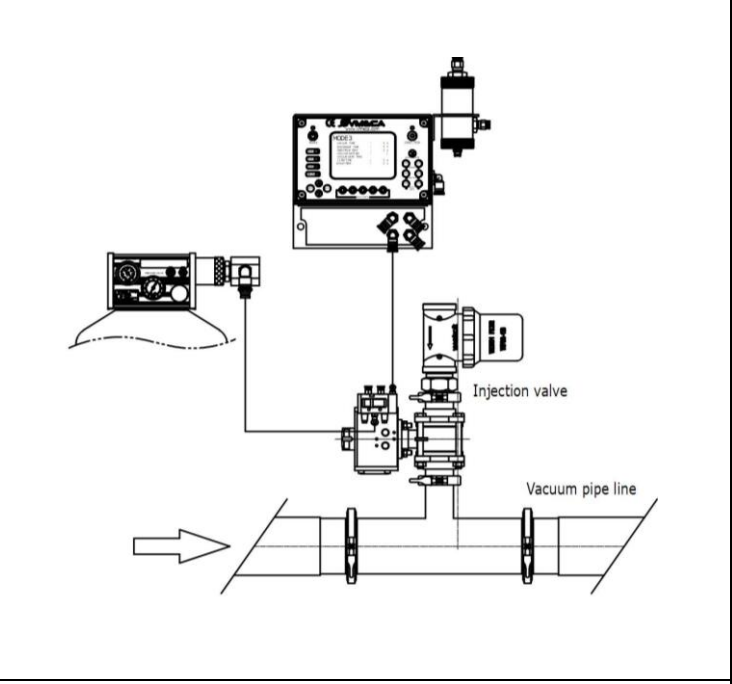
VTC100/400 - AC



VTC100/400 – EC1



VTC600/1200 - AC



VTC600/1200 – EC1

8. Caution during Installation

- 1) Install Vacuum Conveyor near the suction point.
- 2) Install the pipeline so that sufficient compressed air can be fed to the vacuum pump.
- 3) Keep the diameter of Vacuum supply port as big as possible.
- 4) Secure the Vacuum Conveyor with a bracket to prevent movement.
- 5) Don't install the conveyor with the exhaust port parallel to the eyes or near eye-level.
- 6) Check the supply air pressure to see if it is maintaining 4~6 bar while the Vacuum Conveyor is operating.

9. Operation

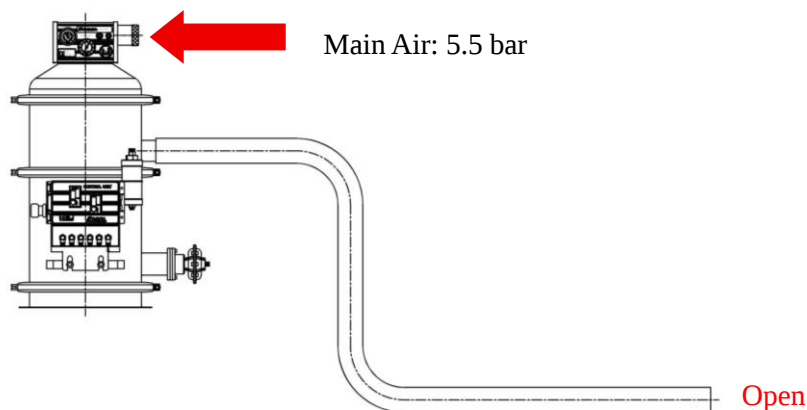
9 – 1. Preparation for Operation

- 1) Install Vacuum Conveyor in the place to use it.
- 2) Check to see if the compressed air pressure is at 4 ~ 6bar.
- 3) Check the power connection of Vacuum Conveyor Control box.
- 4) Check to see if the suction pipes connected with parts are installed properly to operate the Vacuum Conveyor.
- 5) Check the vacuum condition, closing suction port connected to Vacuum Conveyor and pipes.
- 6) Check the vacuum condition with the suction pipe connected. (Check the vacuum condition through the vacuum gauge after vacuum pipes are sealed.)
- 7) Check to see if the vacuum filter is fitted in properly, without any gaps, so the conveying material is not drawn into the vacuum pump.

※ Before product operation, test the conveyor with the below guidelines

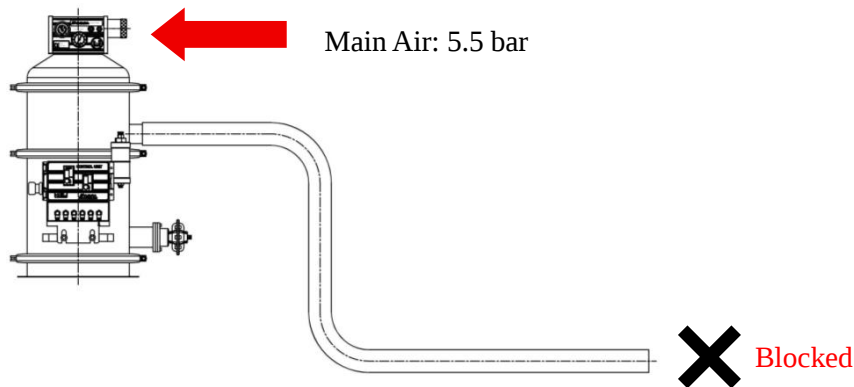
※ Ex) Medium : Sugar, Bulk density : 0.85, Vertical Height : 3 m, Horizontal length : 2 m, Plumbing Size Ø51

1st test : Running with no conveying material



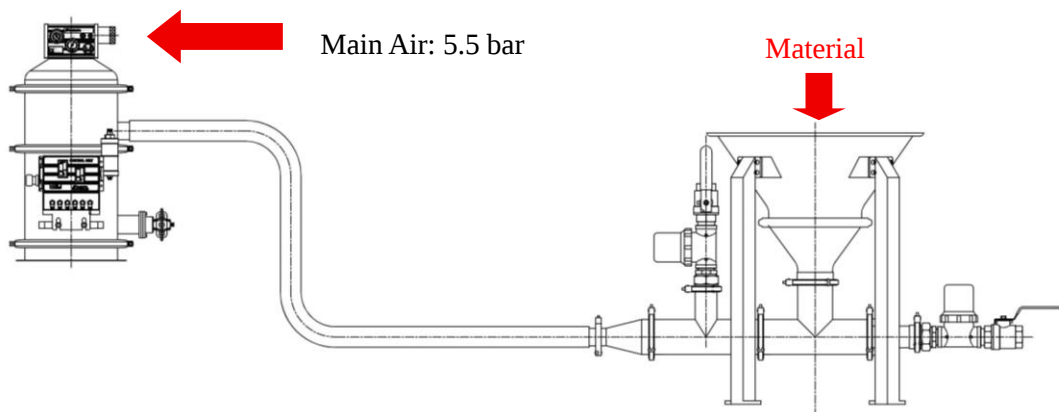
The vacuum at the pump's vacuum gauge must be -10 kPa or less when the machine is running with the hopper/gate valve closed and no material being conveyed. (Initial vacuum may vary depending on the length of the pipe or bends).

2nd test : Running without material but at closed end



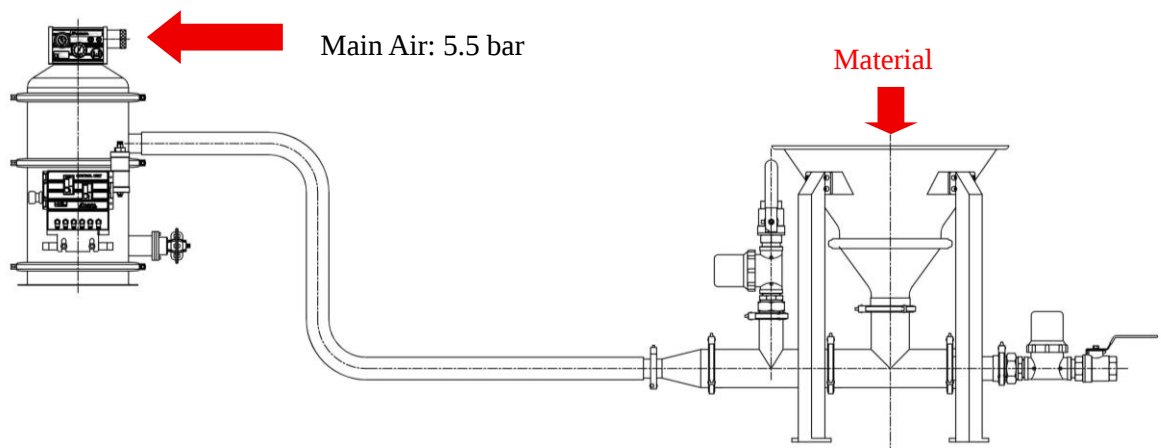
When the piping is blocked and the equipment is operated without any transfer material, while both the hopper and gate valve are closed, it is recommended that the pump's vacuum gauge indicates a vacuum level of at least -70 kPa..

3rd test : Running with material



When the product's hopper/gate valve is in the closed position, the transfer material should be loaded into the feed station and connected to the piping, or alternatively, the transfer material should be connected to the piping using the feed nozzle. Upon starting the product, the vacuum level indicated on the pump's vacuum gauge should be within approximately -20 to -40 kPa. (The actual vacuum level may vary depending on the length or bends of the piping.)

※ Filter is caked or blocked by Material



When the Product is running and the vacuum gauge on the Pump reads as high as -60 kPa, the filter may

be clogged or clumped with material and should be cleaned.

9 – 2. Starting

- 1) Decide the transfer quantity by adjusting suction / exhaust time according to the transfer quantity and start automatic running after adjustments.
- 2) Check the supply air pressure to see if it maintains at 4~6bar when vacuum conveyor is operating.

9 – 3 . Control Unit Setting

1) Pneumatic Control Unit(AC, AC3, AC4, AC4X)

* For the timer (dial) of the pneumatic controller unit, it is 5 section per division.

(Ex : A → 5 sec. B → 10 sec.)

* Turn from 0 to anti-clockwise to set the time. The time is set to 0 seconds when the scale is zeroed again by turning one lap.

* The time setting for Injection Valve has to be shorter (second) than Vacuum Time because the injection valve has to be opened before the hopper lid is opened after the vacuum pump (vacuum on). (Example - Vacuum Timer: 10sec / Injection Valve Timer: 8 sec. : Vacuum pump will be operated (vacuum on) for 10 seconds, and Injection valve will be worked (opened) after 8 seconds later from vacuum pump on. And injection valve is closed (stopped) together with vacuum pump off.)

* The time setting for Non-return Valve has to be shorter (second) than Vacuum Time because the non-return valve has to be closed before the hopper lid is opened after the vacuum pump (vacuum on). (Example - Vacuum Timer: 10sec / Non-return Valve Timer: 8 sec. : Vacuum pump will be operated (vacuum on) for 10 seconds, and Non-return valve will be worked (closed) after 8 seconds later from vacuum pump on. And non-return valve is opened (stopped) together with vacuum pump off.)