

Operation Manual

RYOUSEI Dust Collector

Thank you for buying the RYOUSEI dust collector this time.

To learn the proper use of the machine, ensure to read this operation manual. It will certainly help you to solve a problem or doubt, if any, encountered in use.

Make sure that the production serial number marked on the product main body is consistent with the number printed on the letter of guarantee because the production serial number is important for quality control.

In this operation manual, the safety instructions are divided into “warnings” and “cautions.”

Warning

Improper handling can cause a dangerous situation, resulting in a possibility of a heavy injury or death.

Cautions

Improper handling can cause a dangerous situation, resulting in a possibility of a slight or middle level injury and/or a damaged material.

Before Use

(1) Check items

On receiving this machine, check the following points while the unit has been delivered after strict inspection:

- Check whether or not the nameplate reads the type, output, voltage, and frequency as you have ordered.
- Check for damage resulting from an accident in transportation. If any part is found unacceptable, keep the current condition as it is as far as possible, and check the type and production serial number and then contact the dealer.

(2) Transfer and installation

Warning

- Allow only the qualified personnel to transfer and install the machine. When relocating the unit, take care not to drop or overturn it. This can possibly cause an injury. If the unit is equipped with lift bolts, ensure to use them.

Cautions

- Ensure to place the machine on a flat plane. If required, resurface the foundations. A skewed surface can cause a tumble.
- In the case of a wooden frame package, pay attention to the nails when unpacking because they can possibly cause an injury.
- Keep the warning label sticker visible at all times, but do not peel it off or conceal it behind an obstruction.

(3) Locations for use

Warning

- In flammability or explosive atmospheres, do not use the machine if kept intact in a normal version. This can cause an injury or fire. For various dangerous areas specified in Articles 280 to 282 of the Labor Safety and Health Rules, use an explosion-proof model suitable for such dangerous areas.

Cautions

- Except for the models intended for outdoor purposes, do not use the machine outdoors. This can possibly cause a short circuit.
- Avoid modification of the product at the customer’s own discretion. In this case, the manufacturer assumes no responsibility for the product set out in the warranty.

- Use the machine in an ambient temperature range from -15 °C to +40 °C and at a humidity of 80 percent or less.

(4) Instructions in connecting the power supply

Warnings

- Allow only the qualified personnel to route and connect the wiring. This is to avoid a possible electric shock, injury, or fire. When connecting the power supply, refer to the wiring diagram, or an electric shock or fire can possibly arise.

- Also, to prevent a short circuit from causing an electric shock accident, be sure to connect the main body with the earth at a ground resistance of 100 Ω or less before use.

Make sure the grounding wire is in green. (Articles 18 to 28, Electric Equipment Engineering Standards).

Cautions

- Just all the cables and wires according to the Electric Equipment Engineering Standards and the electric power company’s instructions. Particularly, in the case of an extended wire, which will entail a voltage drop, select the wiring capacity so that the voltage drop would not exceed two percent.
- While all of our products (besides those specially designed) are equipped with an overload preventive device, a leak current breaker or an equivalent should be installed to avoid a fire or electric shock accident.

- Ensure that this machine is used with the power supply of the voltage and frequency instructed on the nameplate.

Make sure that the capacity of the breaker connected with the power supply cable is approximately three times of the reading on the nameplate.

(5) Check on the motor running direction

- Connect the main body definitely with the power supply, switch on the main body, run the motor for a moment, and check the running direction. To make a check, open the main body maintenance door (or top plate for some models) and then connect wires according to the running direction

indicated by the arrowhead showing the reading direction.

Warning

- Be sure to make a visual check on the motor running direction. Never touch the motor shaft with a finger or tool because this can cause an injury.

Caution

- In the case of a reverse rotation, exchange the red and black wires with each other among the three wires, except for the grounding wire. Even if the shaft turns in the reverse direction, the machine tends to be operated in some cases as it is due to its suction force. In such a case, however, the dust collector will not only fail in demonstrating its performance but also cause the motor to be overloaded or burn out and, therefore, close attention should be paid.

- (6) With respect to equipment such as the ducts and hood, negotiate in advance so as to configure them efficiently.

Instructions for use

(1) Power supply

- Make sure that the power supply cable and the power supply plug are securely connected before use. Incomplete contact may cause a single-phase operation, resulting in a motor burned out.

Warnings

- Do not skew, trample, or pinch the power supply cable. This can give you an electric shock. In addition, take care not to apply oil or petroleum to the cable, which may be dissolved.
- With the control panel or terminal box door (lid) open, do not operate the unit because this can result in an electric shock.
- In the case of a power failure, be sure to turn off the power switch or primary power supply. Note that some models will automatically start running on a recovery from the power outage, possibly resulting in an injury.

(2) Operation

Warnings

- Irrespective of whether or not the machine is in operation, prevent a burning substance or an equivalent from being sucked through or thrown into the suction port. This can cause a fire.
- In operation, do not open the maintenance door to place a hand or object. This can possibly result in an injury.
- Before attracting inflammable or explosive powder or gas or installing the machine in a hazardous atmosphere, make sure that the unit is designed to have an explosion-proof structure with electric and structural measures adopted as required.

- Except for specially designed units, our dust collectors are intended for dry powder. Prevent soggy powder with oil or water from being attracted.
- When a large amount of particulate powder such as cement, lime, chemical, or toner is sucked, it may pass through the filter mesh to be released externally along with the exhaust. If this poses a problem in such a place as a clean room, hospital, or chemical company, employ a model incorporating an HEPA exhaust filter oriented to clean rooms.
- Some models are not suitable for some types of powder. If a different type of powder is to be applied because the unit is relocated for example, please contact the manufacturer.

(3) Dust dump (cleaning)

○RV, RSV, RC, RSC, and RF Series

- When the dust collector is used for an extended period of time, the filtering material is loaded with powder to result in a lowered suction flow rate. In this case, stop running once and remove the powder from the filter.
- In the case of a manual shaking type, shake the shaking handle several times to unload from the filter dust.
- For those models of an electric power shaking type, turn off the fan operation switch and wait for 60 seconds until the shaking motor is automatically activated to shed the dust. While the shaking duration will vary depending on the amount and type of the attracted powder, 60 seconds is sufficient in general. To reconfigure the shaking standby and operating time parameters, turn the adjuster knob located on the sequencer in the main body control panel.

VR1 : Shaking standby time of 60 to 310 seconds (60 seconds preset at factory)

VR2 : Shaking operation time of 0 to 250 seconds (60 seconds preset at factory)

- If this machine is to be operated intermittently and shut down frequently, the shaking operation time will be extended, possibly resulting in a considerably short service life of the filter. To use the machine in such a way, adjust the periods of time mentioned above (extend the standby time or reduce the operation time so that operation time of the shaker becomes at most five minutes in total per day).

○RSP Series

- For the RSP series, a pulse jet cleaning method is adopted for the powder shedder, which will automatically start shedding the dust at the specified intervals with the sequencer when the power supply is turned on for the machine to start running. Connect a compressor line (at 0.4 or 0.5 MPa) to the compressed air receiving port (air filter) on the side of the main body when using the machine.
- In a standard condition preset at the manufacturer’s factory before delivery, the solenoid valve is set to be activated at intervals of 60 seconds. And then, after the fan motor stops running, the solenoid valve is further activated for 60 seconds during which the valve operates at intervals of 5 seconds to conduct cleaning. In addition, the activation intervals and the post-shutdown activation period are designed to be variable with the external knobs of the controller for you to make an adjustment as required depending on the using conditions.

(4) Powder disposal

- Release the collected powder as soon as possible. If kept remaining for an extended period of time, the powder will become compact in the dust-collecting bucket (hopper), possibly resulting in a clogged filter or fire.
- After shedding (cleaning) the dust, take out the powder collected in the bucket and hopper each time. To remove the dust-collecting bucket, turn down the installation handle (or to the right for some models) to lower the bucket and pull it out.
- In the case of a hopper type, when opening or closing the valve attached to the discharge port, use a bit by bit opening motion to operate the valve taking care not to allow powder to scatter subsequently.

Maintenance and Inspection for Long Service Life

(1) Maintenance and inspection

Caution

- Before starting inspection, service, or disassembly, make sure that the power supply switch or primary power is turned off in order to avoid a possible electric shock, injury, or fire.

※Precautions for maintenance and inspection

- When starting maintenance or inspection work, make a safety check definitely based on the safety control standards of your company and the Labor Safety and Health Rules.
- To conduct maintenance and inspection work, put on working clothes and wear protective equipment (e.g., dustproof mask and safety glasses).
- If any flammable substance is handled, make sure there is no fire.
- In the case of maintenance or inspection work without running this machine, turn off the primary power supply and indicate that no activation is allowed.

※Maintenance and inspection items

○Before running the machine

- Inspect the appearances to check for any deformation or breakage degrading the functions.
- Make sure that the maintenance door is closed and the dust-collecting bucket is definitely set in position.
- Ensure that dust powder in the dust-collecting bucket (hopper) is disposed.

○In operation

- Check for any air leak from the packing of the maintenance door or dust-collecting bucket.
- Make sure that the indicator lamps (e. g., power supply and operation) on the control panel are turned on.
- Check whether or not the motor squeals or makes an unacceptable noise. Particulate powder leak can cause the ball bearings as the motor of this machine to be excessively worn or damaged.
- Open all the suction ports of the pipe ducts to make an electric current check with the ammeter. If the reading is far smaller than the rated value, the filter may be clogged.

○In periodic inspection or disassembly

- Open the maintenance door to inspect the filter and, if heavily contaminated, then clean or replace it. Note that the filter must be replaced if torn off or there’s a hole, even partially.
- Inspect the packing of the maintenance door and dust collecting bucket unit. If there is unacceptable deformation or deterioration, replace the packing with a new one.

○Other parts

- Check whether or not the hood, hoses, and pipes are installed properly with no deformation or damage. When the machine is operated, check for any air leak from the connections. In addition, if powder is found accumulating internally, take it out.
- Inspect the control panel for inside powder accumulation. In the case of conductive powder, this can cause a leak current or a short circuit to the ground and, therefore, periodic cleaning is required.
- Check the filter housing for internal powder deposition. If a lot of powder remains, the filter may be attached incorrectly, torn off, or broken.

(2) Replacing the filter

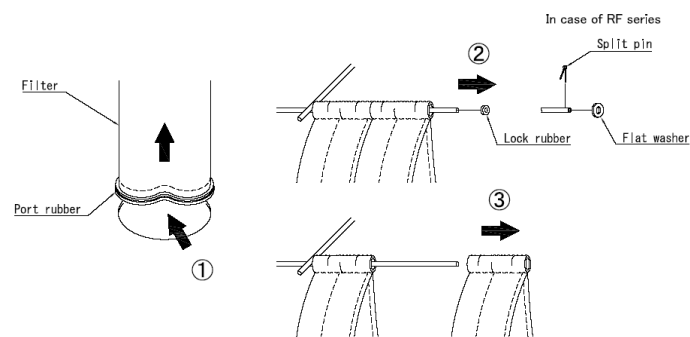
- In the long run, the filter will be clogged and worn and, therefore, must be washed with water or replaced in approximately one year as an aim. In addition, if the filter is washed, check it carefully for breakage.
- Depending on the type of powder to be collected, the collected powder can not fully be removed in some cases when shedding the dust (cleaning). In such a case, remove the filter from the main body and clean it with an electric cleaner or wash it with water (with commercially available detergent added for efficiency). Moreover, make sure that the filter is completely dried before installation. Depending on the type of filter, the filter may not be washable with water. For further information, contact us.

⚠ Cautions

- Before inspecting or replacing the filter, be sure to turn off the primary power supply for all the machine units to stop running.
- When placing or removing the filter port rubber, the perforated plate (port rubber mount disk) can possibly injure your fingers. To avoid such a problem, you are recommended put on gloves, etc.
- If the filter is incompletely fitted, attracted powder may be discharged from the exhaust port. Ensure tight seating.

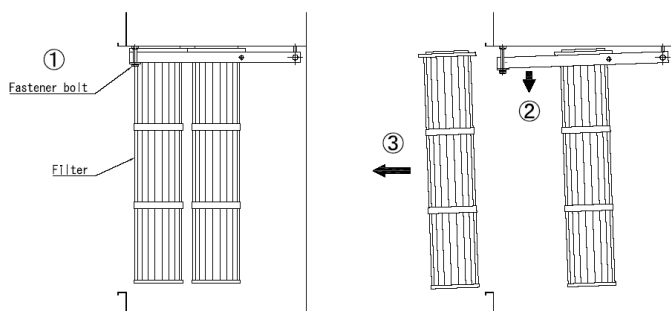
○RV, RSV, RC, RSC, and RF Series

- ① Apply a centripetal force to the filter port rubber and pull upward to remove it.
- ② Detach the lock rubber located at the edge of the filter hanger. In the case of an RF series, remove the split pin and flat washer.
- ③ Detach the filter from the filter hanger.
- ④ In the same manner, demount all the filters. To install the filters, reverse the procedure shown above. At this time, take care not to twist the filter when inserting the filter into the hanger. Additionally, make sure that the port rubber is firmly seated.



○RSP-520 Series

- ① Loosen the fastener bolts (at four locations) on the upper inside of the filter housing.
- ② Wait for the filter mount frame to descend.
- ③ Pull out the filters.
- ④ To install them, reverse this procedure. Make sure that the packing on top of the filter is in intimate contact with the top plate.

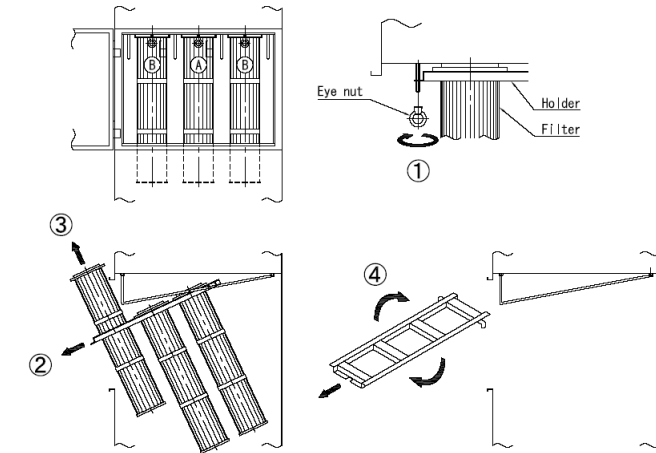


- After installing the filters, touch them to check for looseness, and, if any, then it is unlikely that the filters are mounted properly. If the upper packing is considerably deformed, it must be replaced with a new one.

○RSP Series

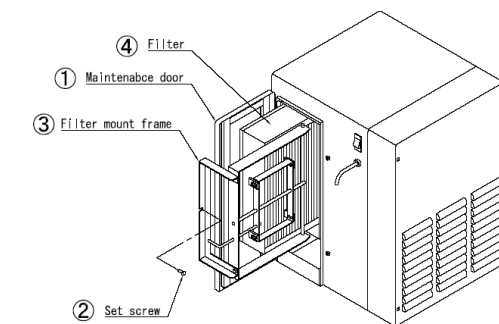
For this series, the cassette holder and the mount position are marked with A and B respectively. In replacing a filter, ensure to match these symbols with each other.

- ① Loosen and remove the eye bolts retaining the cassette holder A.
 - ② Slightly pull the cassette holder outward to remove the filter in the front.
 - ③ Further slightly pull the cassette holder outward to remove the second and then the third filter.
 - ④ Take out the cassette holder from the rails.
 - ⑤ Then, remove the filters from the cassette holder B in the same manner.
 - ⑥ To install them, reverse this procedure to place B at first, followed by A. Additionally, take care in mounting the filter not to break it.
- Finally, touch the filters to make sure that the filters have tightly been installed. If any filter is found loose, it seems to have been miss-fitted.



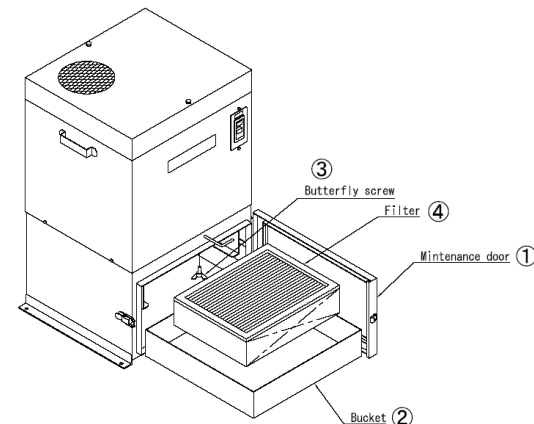
○RV-05B Type

- ① Remove the maintenance door fastener bolts to open the maintenance door.
- ② Detach the set screws retaining the filter mount frame.
- ③ Draw out the filter mount frame.
- ④ At last, pull out the filter.



○RSV-211B Type

- ① Remove the catch clips to open the maintenance door.
- ② Pull out the dust-collecting bucket.
- ③ Loosen the butterfly screws at two locations on the lower portion of the filter.
- ④ Draw out the filter.



○RC-560 Series

- ① Remove the maintenance door fastener nuts to open the maintenance door.
- ② Loosen the butterfly screws attached at two locations above the filter.
- ③ Pull out the filter.

○RSM Series

- ① Remove the catch clips to open the maintenance door.
- ② Detach the quick installation or release hose band to take out the dust-collecting bag.
- ③ Open the fastener of the dust-collecting bag to dispose of the dust. Note that the grip of the dust-collecting bag is helpful to carry the bag.

○HEPA filter

In the case of a dust collector equipped with an HEPA filter, particulate powder passing through the primary filter will be captured here. Since the HEPA filter can not be regenerated, replace it with a new one in a certain period of time (at a final pressure loss of 0.5 kPa or more when reading the differential pressure).

(3) Replacing the motor

The fan driving motor (electric unit) includes ball bearings, and can be worn or damaged due to particulate powder intrusion under some condition when used for an extended period of time. In such a case, the unit will make an abnormal noise or vibration. Therefore, pay attention to the running noise in operation and, if an abnormal noise occurs, make an inspection to repair or replace the part.

- Removing the top plate
- Loosen and remove the lift bolts (bolts) fitted at two or four locations and then uninstall the top plate.
- In the case of an HEPA filter mount type, remove the HEPA filter and the HEPA filter housing as well.
- Disconnecting the wiring routed to the motor
Open the terminal box of the electric motor to disconnect all the wires connected.
- Detaching the motor mount plate retainer bolts
Remove the retainer bolts fitted at three or four locations.
- Removing the electric motor and turbo fan along with the motor mount plate
Pass shackles or an equivalent through the motor retention leg holes or lift bolts located on the electric motor so as to lift the motor with a forklift. To place the motor mount plate on the floor, ensure that the turbo fan faces upward.
- Uninstalling the turbo fan
Loosen and detach the retainer bolt located in the center of the shaft. Next, grasp the turbo fan with your hands to pull and remove the fan toward the edge of the shaft. At this time, take care not to pull the fan forcibly because this can result in a damaged motor shaft or turbo fan.
- Remove the electric motor from the motor mount plate by detaching the bolts and nuts used for retention at four locations.

■ About After-Sales Service

- (1) Letter of guarantee
The warranty period lasts for one full year from the day of purchase.
- (2) To ask for service in the warranty period
Search for the cause and take action according to the list in the next section "If you have any doubt about failure, ... first, inspect." If the problem persists, contact the manufacturer or the dealer from which you have purchased the product.
- (3) To ask for service after the warranty period
Contact the manufacturer or the dealer from which you have purchased the product. If the performance of the product can be maintained by repairing, the machine is serviced with fee.
- (4) Minimum period to store performance maintaining parts for repair
For at least six years after discontinued production, the manufacturer reserves service application parts for maintaining the performance of the dust collectors in each type.
- (5) If you have any question about after-sales service, such as repair in the warranty period, contact the manufacturer or the dealer from which you have purchased the product.
- (6) This warranty, and service are valid only in Japan.

■ If You Have Any Doubt About Failure, ... First, Inspect

Symptom	Possible cause	Corrective action
Not start running even if switched on (Fan ON)	Power supply not turned on	Turn on power.
	Overload protection device activated	Search for cause and then resume running.
	Magnet switch thermal relay tripped	Search for cause and then reset.
	Switch contact fault	Repair or replace
	Motor malfunction	Repair or replace
Motor stops running in operation	Power supply cable (wire) broken	Repair or replace
	Running in reverse direction, resulting in over current	Check running direction.
Unacceptable vibration or noise	Protection device activated owing to repeated start and stop cycles	Wait for minutes and then restart running.
	Motor bearing worn or damaged	Repair or replace
Powder blown from exhaust port	Motor mount or another fastener part loosened	Inspect and retighten bolts.
	Filter damaged or worn	Replace
Degraded attraction force or no suction	Filter installation fault	Inspect
	Clogging on filter	Wash with water or replace.
	Dust collecting bucket fully loaded	Dispose of powder.
	Dust collecting bucket installation fault	Fit firmly.
	Clogging in duct or hose	Clean
	Deformation or breakage of duct or hose	Replace
Duct or hose connection fault	Inspect	

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