

# **SAL-UG124** Series

**"One-to-Four" Separate Hopper Loader**

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## Contents

<b>1. General Description .....</b>	<b>5</b>
1.1 Coding Principle .....	6
1.2 Feature.....	6
1.3 Technical Specifications.....	8
1.3.1 Dimensions (Main Unit) .....	8
1.3.2 Hopper.....	8
1.3.3 SHR-U-S Hopper Base Installation Size.....	8
1.3.4 Specifications .....	9
1.3.5 Loading Capacity .....	9
1.4 Safety Regulations .....	10
1.4.1 Safety Signs and Labels .....	10
1.4.2 Signs and Labels .....	10
1.5 Exemption Clause .....	11
<b>2. Structure Characteristics and Working Principle .....</b>	<b>12</b>
2.1 Main Functions.....	12
2.1.1 Working Principle.....	12
2.2 Optional Accessories .....	13
2.2.1 Air Accumulator .....	13
2.2.1.1 Function of air Accumulator.....	13
2.2.1.2 Specification of air Accumulator .....	13
2.2.2 Buzzer .....	13
<b>3. Installation and Debugging.....</b>	<b>14</b>
3.1 Installation Space .....	14
3.2 Power Connection.....	14
<b>4. Application and Operation.....</b>	<b>15</b>
4.1 Control Panel .....	15
4.2 Operational Steps .....	16
4.3 Parameters Setup .....	16
4.4 Parameter list.....	16
4.5 Parameter Input .....	17

<b>5. Trouble-shooting</b> .....	<b>19</b>
<b>6. Maintenance and Repair</b> .....	<b>20</b>
6.1 Material Hopper.....	20
6.2 Main Body .....	21
6.3 Reed Switch, Photoelectric Switch.....	21
6.4 Weekly Checking .....	21
6.5 Monthly Checking.....	22
6.6 Maintenance Schedule.....	23
6.6.1 About the Machine.....	23
6.6.2 Installation & Inspection.....	23
6.6.3 Daily Checking.....	23
6.6.4 Weekly Checking.....	23
6.6.5 Monthly Checking .....	23

### Table Index

Table 1-1: Specifications .....	9
Table 4-1: Control Panel Description .....	15

### Picture Index

Picture 1-3: Dimensions.....	8
Picture 1-4: Hopper SHR-U-S Technical Specifications .....	8
Picture 1-5: Hopper Base Installation Size .....	8
Picture 1-6: Loading Capacity.....	9
Picture 2-1: Working Principle .....	12
Picture 2-2: Air Accumulator .....	13
Picture 2-3: Buzzer .....	13
Picture 3-1: Installation Space .....	14
Picture 4-1: Control Panel.....	15

## 1. General Description



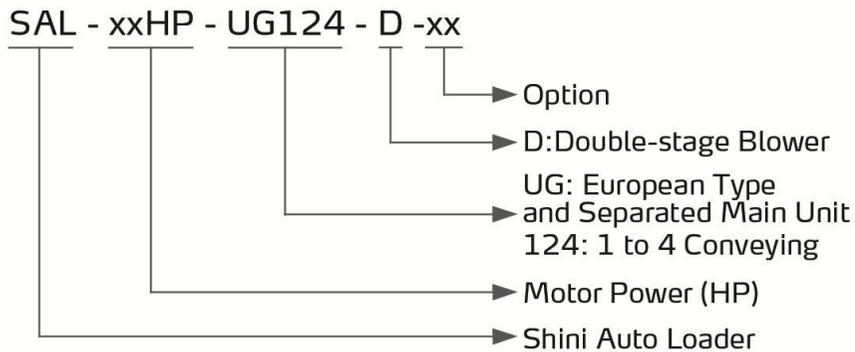
Read this manual carefully before operation to prevent damage of the machine or personal injuries.

"One-to-Four" Separate hopper loader are designed and developed on the basis of original European separate-vacuum hopper Loader. They feature more functions, easy to operate, and convenient to install. This model, equipped with a high pressure blower and four SHR-U-S type European central vacuum hoppers, is applicable to four dehumidifying and drying machines (dehumidifying dryer "SDD") or one gravimetric blender "SGB" to process plastic materials. Besides that , it can also realize the "One-to-Four" way of conveying materials to different moulding machines or hoppers to greatly lower the cost.



Model: SAL-5HP-UG124-D Main Unit + SHR-12U-S Hopper

## 1.1 Coding Principle



## 1.2 Feature

- "One-to-Four" hopper loader can greatly lower the cost.
- Dust collective chamber features a cyclone separator and a dust collective bin to effectively reduce the load of the filter.
- Separate dust collector is convenient for dust cleaning.
- Main unit equips with faults and motor overload indicators to show faults fast.
- The main body of SAL-2HP~5HP equips with vacuum-breaking valve and SAL-10HP main body equips with vacuum valve to protect the blower.
- Standardly equipped with warning lamp
- CE safety plug ensures safe and reliable operation.

All service work should be carried out by a person with technical training or corresponding professional experience. The manual contains instructions for both handling and servicing. Chapter 6, which contains service instructions intended for service engineers. Other chapters contain instructions for the daily operator.

Any modifications of the machine must be approved by SHINI in order to avoid personal injury and damage to machine. We shall not be liable for any damage caused by unauthorized change of the machine.

Our company provides excellent after-sales service. Should you have any problem during using the machine, please contact the company or the local vendor.

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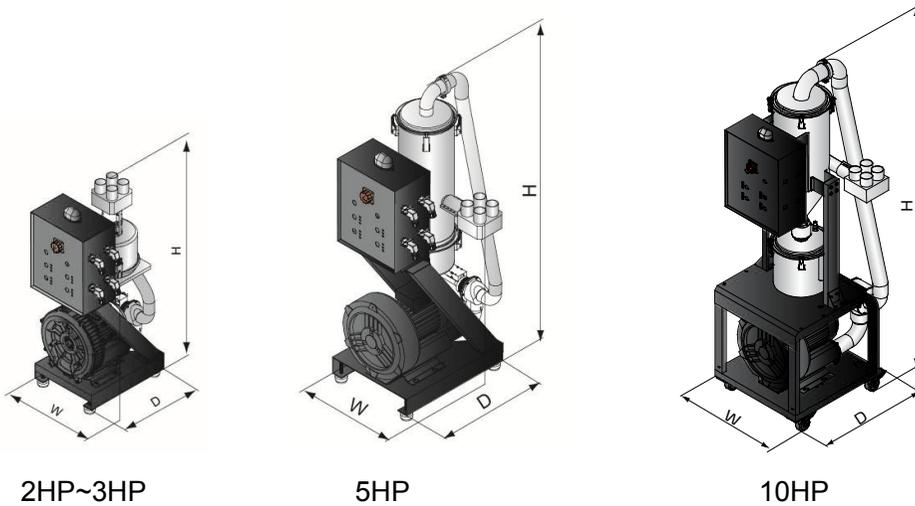
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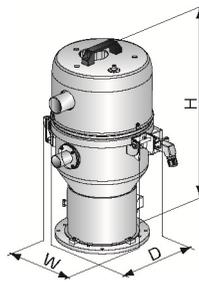
## 1.3 Technical Specifications

### 1.3.1 Dimensions (Main Unit)



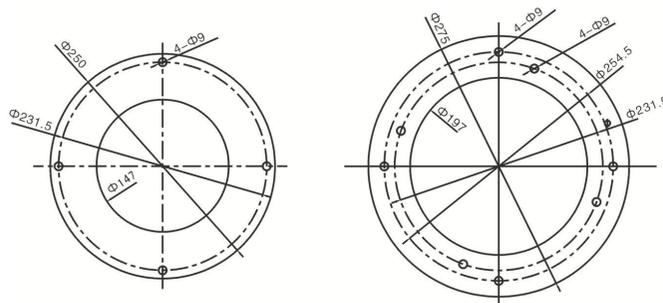
Picture 1-1: Dimensions

### 1.3.2 Hopper



Picture 1-2: Hopper SHR-U-S Technical Specifications

### 1.3.3 SHR-U-S Hopper Base Installation Size



Picture 1-3: Hopper Base Installation Size

### 1.3.4 Specifications

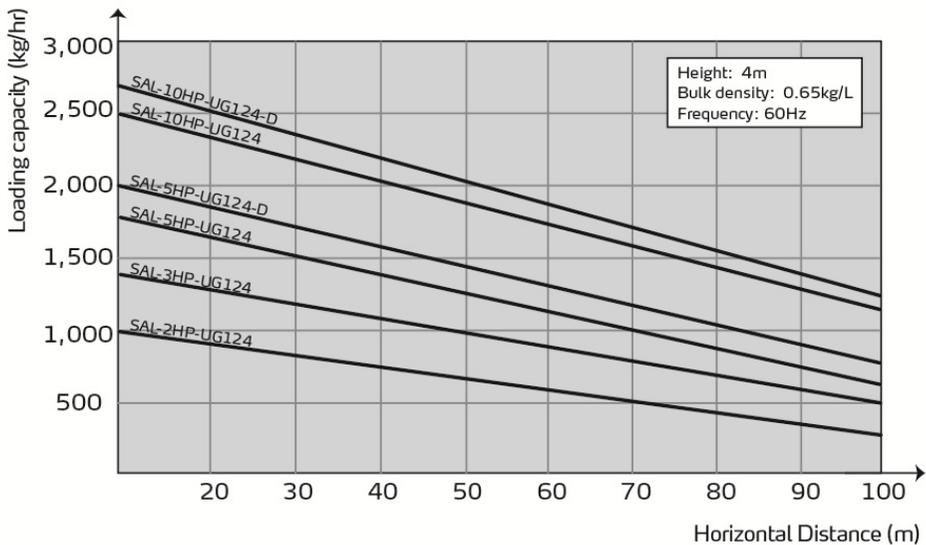
Table 1-1: Specifications

Main Unit					Hopper Receivers				Loading Pipe Dia. (Inch)	Air Suction Pipe Dia. (Inch)	Loading Capacity (kg / hr)
Model	Ver.	Motor Power (kW) (50 / 60Hz)	Dimensions (mm) H×W×D	Weight (kg)	Applicable Model	Capacity (L)	Dimensions (mm) H×W×D	Weight (kg)			
SAL-2HP-UG124	C	1.5 (3Φ)	1050×430×555	60	4×SHR-3U-S	3	600×270×340	7.5	1.5	2	550
SAL-3HP-UG124	A	1.85 (3Φ)	1050×430×555	65	4×SHR-6U-S	6	560×305×375	9	1.5	2	850
SAL-5HP-UG124	D	3.7 (3Φ)	1380×640×630	175	4×SHR-12U-S	12	615×335×405	9	1.5	2	1200
SAL-5HP-UG124-D	D	3.4 (3Φ)	1380×690×630	180	4×SHR-12U-S	12	615×335×405	9	1.5	2	1350
SAL-10HP-UG124	B	7.5 (3Φ)	1988×764×790	185	4×SHR-36U-S	36	1035×335×405	12	2	2.5	1800
SAL-10HP-UG124-D	B	7.5 (3Φ)	1988×934×787	192	4×SHR-36U-S	36	1035×335×405	12	2	2.5	2000

Note: 1) Test condition of conveying capacity: Plastic material of bulk density 0.65kg/L(5.5lb/gal), dia.3~5 mm/0.12~0.2inch, vertical conveying height: 4m/13.1feet, horizontal conveying distance: 5m.

2) Power supply: 3Φ, 230/400/460/575V, 50/60Hz.

### 1.3.5 Loading Capacity



Picture 1-4: Loading Capacity

## 1.4 Safety Regulations

Strictly abide by the following safety regulations to prevent damage of the machine or personal injuries.

### 1.4.1 Safety Signs and Labels



All the electrical components should be installed by professional technicians.

Turn off the main switch and control switch during maintenance or repair.



Warning! High voltage!

This sign is attached on the cover of control box!



Warning! Be careful!

Be more careful at the place where this sign appears!



Attention!

No need for regular inspection because all the electrical parts in the control unit are fixed tightly!

### 1.4.2 Signs and Labels



1. Please clean the suction filter regularly to avoid clogging and ensure proper loading capacity and long life span.
2. The one year warranty does not cover the suction filter, please clean the filter carefully.

## 1.5 Exemption Clause

The following statements clarify the responsibilities and regulations born by any buyer or user who purchases products and accessories from Shini (including employees and agents).

Shini is exempted from liability for any costs, fees, claims and losses caused by reasons below:

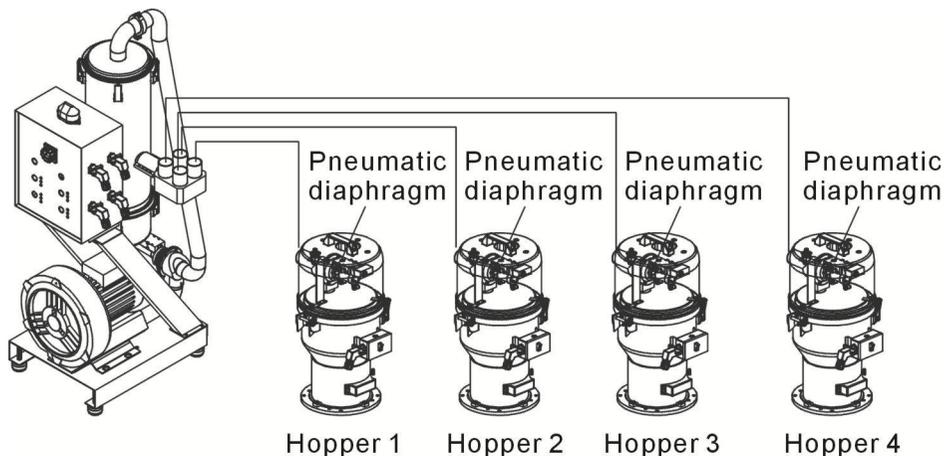
1. Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
2. Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible natural disasters including fire, flood, storm and earthquake.
3. Any operational actions that are not authorized by Shini upon machine, including adding or replacing accessories, dismantling, delivering or repairing.
4. Employing consumables or oil media that are not appointed by Shini.

## 2. Structure Characteristics and Working Principle

### 2.1 Main Functions

SAL-UG "Euro" separate-vacuum hopper loader is applicable to convey plastic granule. Its principle is to make use of motor generated vacuum to form a pressure gap and to convey plastic material by this way.

#### 2.1.1 Working Principle



Picture 2-1: Working Principle

Turn on the switch of the feed station to start the wind blower and open the relevant diaphragm valve of the hopper. A high pressure vacuum is generated in the hopper and the non-return flap is thus closed. The crew material is thereafter suctioned into the hopper due to differential pressure. After finishing the suctioning action, stop the motor and the vacuum breaking valve is opened. The crew material is dropped by gravity. When the magnetic proximity switch detect that there is no material, the motor starts up again. When in continuously 3 times failed to load material, the red alarming light for relevant feeding station on electrical control box starts to sound the alarm.

When all the suction switches are turned on, the system will work from feeding station1 to 4 circularly.

## 2.2 Optional Accessories

### 2.2.1 Air Accumulator

#### 2.2.1.1 Function of air Accumulator

In the case of much impurity or recycled materials included in raw materials, main unit can be equipped with air accumulator auto washing unit as options, and add "A" at the end of model code. (Suitable for SAL-5HP-UG and models above)



Picture 2-2: Air Accumulator

#### 2.2.1.2 Specification of air Accumulator

Air accumulator: HxD=170x76mm

***Note: Please fix the air supply correctly. Air pressure not less than 4 bar.***

### 2.2.2 Buzzer



Picture 2-3: Buzzer

Buzzer is available as an option.

### 3. Installation and Debugging



Read this chapter carefully before installation of the machine. Install the machine by following steps.

Power supply should be fixed by qualified technicians!

#### 3.1 Installation Space

When install this machine, make sure to have enough space for installation (there should be 1m remain space around the machine), like show in the figure. It is not convenient for checking and maintenance of the machine if it is installed in a narrow space.



Picture 3-1: Installation Space

#### 3.2 Power Connection

Make sure the power supply is complied with the required specification before connection.

The power specification of the machine is preset as 3 $\Phi$ 400V usually and can be also made on customer's specific requirements.

***Note: Before connecting to power supply, make sure the power switch is in shut off position.***

## 4. Application and Operation

### 4.1 Control Panel



Picture 4-1: Control Panel

Table 4-1: Control Panel Description

No.	Name	Function description	Notice
1	Main power switch	Machine power control.	Notice: turn the main power switch to " OFF" position when not in use.
2	Power indicator	When connected to the power supply and this light is bright when turns on main power switch.	Notice: do not disassemble any unit or contact any pole, otherwise it will lead to electric shock.
3	Feeding switch	When placed in on feeding action is carried out. When off no feeding action.	The machine is designed to have four feeding station, and the four feeding switches on the control panel are respectively control them.
4	Failure indicator	When in continuously 3 times no material loading, this light is alight and buzzer is sounding. This feeding station stops working.	Material shortage.
5	Feeding indicator	Alight when feeding.	
6	Feeding station startup indicator	Alight when placing the feeding switch on off.	
7	Motor overload indicator	When the motor is overloaded, this light lights up and the buzzer is sounding. The system stops working.	Check the motor to see if there are problems such as getting stuck or bearing damage. If not, check setup current of the thermo overload relay to see whether it is too little. Wait for one minute after shooting the above troubles. Then press "reset" to restart the thermo overload relay to reset the alarm indicator.

## 4.2 Operational Steps

- 1) Turn on the main power. The green power indicator is alight.
- 2) The startup indicator is alight after turning the switch of one feeding stations to ON position. When receiving signals for feeding, feeding action begins. And the feeding indicator is alight. When the feeding stations are all ON, feeding action will be in turn.
- 3) When in continuously 3 times no receiving signals being detected, the system will sound the alarm and the feeding stations stop working.

## 4.3 Parameters Setup

Parameters setup is conducted via SIEMENS LOGO! Firstly, define the parameters according to demand; secondly, input the parameters into the controller manually. Open the control panel, enter the LOGO! Parameters setup interface.

## 4.4 Parameter list

Parameter Block No.	Function	Remarks
B1	Feeding time for station 1	Setting value is according to the hopper's capacity and distance of station 1, the factory value is 20S
B2	Feeding time for station 2	Setting value is according to the hopper's capacity and distance of station 2, the factory value is 20S
B3	Feeding time for station 3	Setting value is according to the hopper's capacity and distance of station 3, the factory value is 20S
B4	Feeding time for station 4	Setting value is according to the hopper's capacity and distance of station 4, the factory value is 20S
B5	Stop time delay	Suction motor factory delaying stop time is 60S
B7	Material shortage Alarming times for station 1	Material is not enough, how many times the recorded alarms, the factory value is 3times
B8	Material shortage alarming times for station 2	Material is not enough, how many times the recorded alarms, the factory value is 3times
B9	Material shortage alarming times for station 3	Material is not enough, how many times the recorded alarms, the factory value is 3times
B10	Material shortage alarming times for station 4	Material is not enough, how many times the recorded alarms, the factory value is 3times
B45	Material checking time for station 1	Setting value is according to the hopper's capacity and distance of station 1, the factory value is 12S
B46	Material checking time for station 2	Setting value is according to the hopper's capacity and distance of station 2, the factory value is 12S
B47	Material checking time for station 3	Setting value is according to the hopper's capacity and distance of station 3, the factory value is 12S
B48	Material checking time for station 4	Setting value is according to the hopper's capacity and distance of station 4, the factory value is 12S

## 4.5 Parameter Input

The SIMENS LOGO! Controller originally displays date and time.

```
SU 09:00  
2008-01-01
```

- 1) Press "ESC", the LOGO! Controller shifts from operating mode to parameter mode and display parameter setup menu.

```
> Stop  
Set Param  
Set  
Prg Name
```

The four menus work respectively:

STOP

Choose this command to stop the controller.

**Note: Do not choose the functions in this menu because it will stop the running system forcefully.**

Set Parameter

B1, B2, B3, B4, B5 parameter blocks will be configured via choosing this command.

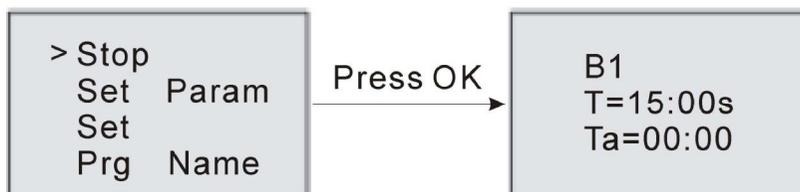
Set

Setup the time of the LOGO! Controller via this command.

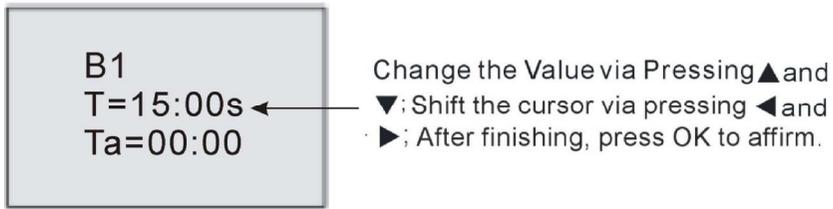
Parameter Name

This command only allows you to access to the name of the controller program.

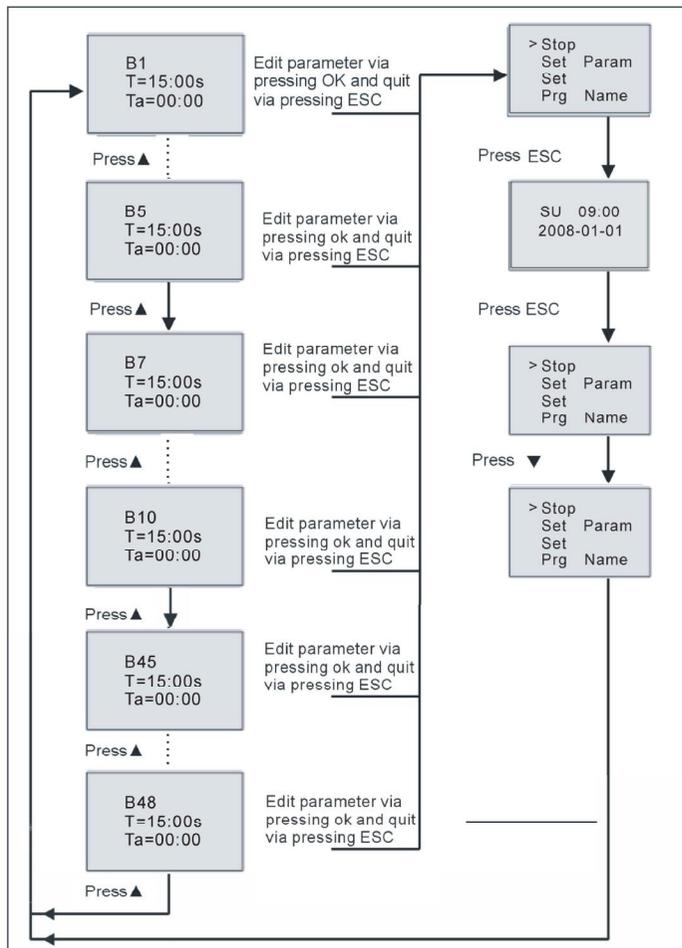
- 2) Move the ">" cursor to "Set Param" by pressing ▲ or ▼.



- 3) Press OK to affirm and LOGO! Displays the first parameter block B1.
- 4) Repress OK to affirm editing parameters.



- 5) Press ▲ after finishing the setup of B1 parameter block and the LOGO! Displays the second parameter block B2. Press OK to edit the parameter. Repress ▲ and the same way LOGO! Displays the third parameter B3. Setup B3, B4, B5 etc. the same way. Quit the setup interface after finishing.



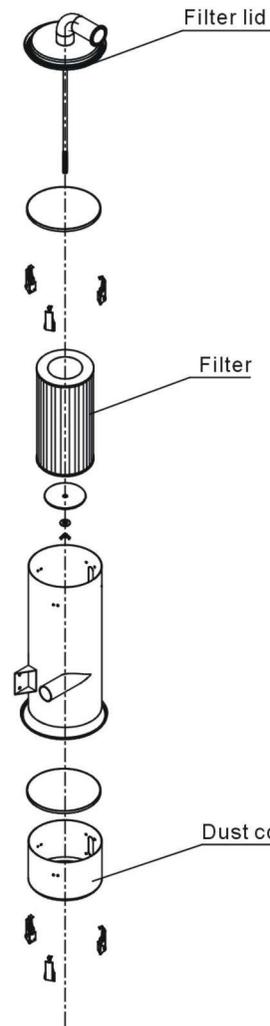
## 5. Trouble-shooting

Failures	Possible reasons	Solutions
Power indicator is not alight after opening the power	<ul style="list-style-type: none"> <li>Unconnected to main power.</li> <li>Power switch is damaged.</li> <li>Power cable fails.</li> <li>Fuse of control circuit is fused.</li> <li>Control transformer fails.</li> </ul>	<ul style="list-style-type: none"> <li>Connect to the main power.</li> <li>Replace power switch.</li> <li>Check power cables.</li> <li>Check cable and replace fuse.</li> <li>Replace transformer.</li> </ul>
After turn on the power switch, power indicator is alight but LOGO! Controller cannot display and system stops working	<ul style="list-style-type: none"> <li>Cable failure.</li> <li>LOGO! Controller is damaged.</li> </ul>	<ul style="list-style-type: none"> <li>Check the cable.</li> <li>Replace the controller.</li> <li>Check the cable.</li> </ul>
System cannot work after turning on the system switch	<ul style="list-style-type: none"> <li>Cable failure.</li> <li>LOGO! Controller is in stop condition.</li> <li>Feed-in switch is damaged or in full-receiver state.</li> </ul>	<ul style="list-style-type: none"> <li>Let LOGO! Controller in start position.</li> <li>clean the materials or replace switch.</li> </ul>
The feed in hopper cannot suction after a long time of lack of materials.	<ul style="list-style-type: none"> <li>Cable failure.</li> <li>Magnetic proximity switch is damaged.</li> </ul>	<ul style="list-style-type: none"> <li>Check the cable.</li> <li>Replace the magnetic.</li> <li>Proximity switch.</li> </ul>
One station suctions for 3 times and there is a red alarm. (Red indicator is alight)	<ul style="list-style-type: none"> <li>Cable failure.</li> <li>Magnetic proximity switch is damaged.</li> <li>Diaphragm valve is damaged.</li> <li>The tube is not airproof to suction the materials.</li> </ul>	<ul style="list-style-type: none"> <li>Check the cable.</li> <li>Replace the magnetic proximity switch.</li> <li>Replace the diaphragm valve.</li> <li>Check to see whether there is any leakage.</li> </ul>
Full storage but the blower is still working.	<ul style="list-style-type: none"> <li>The magnetic proximity switch is in the condition of "ON".</li> <li>Signal cable is short circuit.</li> <li>Contactor is of mechanical failure or the contacting point have stuck. LOGO!</li> <li>Controller failure.</li> </ul>	<ul style="list-style-type: none"> <li>Adjust or replace the switch.</li> <li>Check the signal cable.</li> <li>Repair or replace.</li> <li>Check and replace.</li> </ul>
Feed-in motor can not work.	<ul style="list-style-type: none"> <li>Motor is damaged.</li> <li>Contactor is damaged.</li> <li>overload relay is damaged.</li> <li>LOGO! is damaged.</li> <li>Cable failure.</li> </ul>	<ul style="list-style-type: none"> <li>Check and replace.</li> </ul>
Poor material liquidity in the pipe	<ul style="list-style-type: none"> <li>Over or lack of air quantity</li> </ul>	<ul style="list-style-type: none"> <li>Adjust air inlet location of the suction box.</li> <li>Avoid small bending of the elbow.</li> </ul>

## 6. Maintenance and Repair

**Note: All the repair work should be done by professionals in order to prevent personal injuries and damage of the machine.**

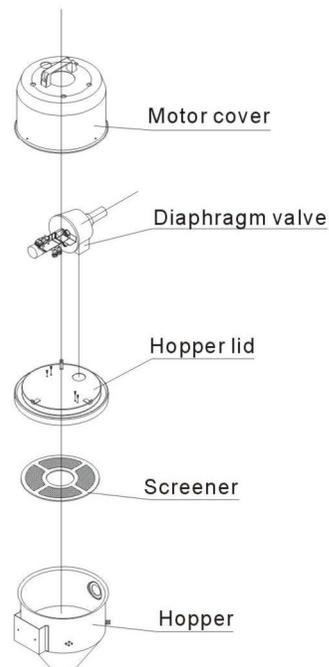
### Main body, Filter Inspection and Storage Hopper Cleanup



1. Open the filter lid and remove the filter, blow away the dust on it with a high pressure air gun from inside to outside.
2. Clean the filter.  
Period: daily
3. Clean the dust collection bin.  
Period: daily

### Hopper, Screener

1. Loosen the snap hook of the tank, remove the filtering barrel lid, take out the plate filter and eliminate the dust on it.
2. Clean the plate filter. Period: daily



### 6.1 Material Hopper

Clean material hopper periodically or when you find conveying capacity reduced. Please loose the spring clips, take down the hopper lid, and take out filter screen. Remove all the dusts and fines on filter screen and inside of material hopper.

## 6.2 Main Body

Take out the air filter to make it clean periodically or when you find conveying capacity reduced. Always keep smooth air flow through air filter to maintain good conveying capacity.

Cleaning steps:

- 1) Loosen spring clips of filter cover and butterfly screws, and take out the filter.
- 2) Remove the dusts adhering to the filter to keep good suction power.

## 6.3 Reed Switch, Photoelectric Switch

Reed switch

When the indicator of the reed switch doesn't work, check the switch contact and replace with a new one if it doesn't work well.

- 1) Unscrew the outer box of the sensor.
- 2) Adjust the depth or move position the sensor inserted into the box, the indicator lamp lights means that magnetism has been detected and the switch is well worked.
- 3) If magnetism cannot be detected by magnets, please check whether the switch is bad contacted or damaged.

Photoelectric Switch

When the indicator of the photoelectric switch doesn't work, check the switch contact and replace with a new one if it doesn't work well.

- 1) Check whether the wires are bad contacted.
- 2) Please replace with a new one if the switch is damaged.

## 6.4 Weekly Checking

- 1) Check if there are broken electrical wires or not. Replace the broken wires immediately.
- 2) Check the function of the keys on the control panel.
- 3) Check if conveying hose connections at material inlet are loose or not, and if the seal ring is sealed up.

**Note: Cut off power supply when you check electrical wires.**

## 6.5 Monthly Checking

- 1) Check if the clips of hopper lid is loose or not.
- 2) Check if the stopping flap is out of shape. If it is, please replace it.
- 3) Check the performance of magnetic proximity switch or photo sensor. If there is poor contact, adjust or replace it.
- 4) Check the working condition of the suction motor.

## 6.6 Maintenance Schedule

### 6.6.1 About the Machine

Model \_\_\_\_\_ SN \_\_\_\_\_ Manufacture date \_\_\_\_\_

Voltage \_\_\_\_\_  $\Phi$  \_\_\_\_\_ V Frequency \_\_\_\_\_ Hz Power \_\_\_\_\_ kW

### 6.6.2 Installation & Inspection

- Check if the takeover pipe has been correctly connected.
- Check if that pipe is locked up by clips.
- Check if mounting base is locked tightly.

#### Electrical Installation

- Voltage: \_\_\_\_\_ V \_\_\_\_\_ Hz
- Fuse melting current: One-phase: A \_\_\_\_\_ Three-phase: \_\_\_\_\_ A
- Check phase sequence of power supply.

### 6.6.3 Daily Checking

- Check main power switch.
- Check filter mesh.
- Check working status of the motor.

### 6.6.4 Weekly Checking

- Check all the electrical cables.
- Check if there are loose connections of electrical components.
- Check the screw of the feed-in pipe's flange is loosed or not.
- Check the air filter.

### 6.6.5 Monthly Checking

- Check the spring lock on the hopper cover is loosed or not.
- Check the reversal stop piece is deformed or not.
- Check the function of the magnetic proximity switch.