## SAL-330/360

Self-contained Hopper Loader

Date: Jan, 2016 Version: Ver.B





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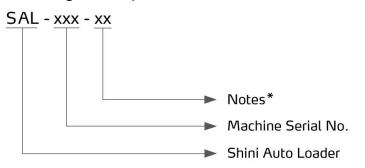


## 1. General Description

Please read through this operation manual before using and installation to avoid damage of the machine and personal injuries.

The SAL-330/360 series use a high-speed motor in this lightweight and compact unit. With superior suction power and easy installation. It is particularly suitable for conveying new materials.

1.1 Coding Principle



Note:\*

P=For Polished Hopper Inside CE=CE Conformity

#### 1.2 Main Features:

1) Standard Configuration

- Stainless steel hopper, motor overload protective device.
- All the machines are equipped with hinged hopper lid.
- SAL-330/360 has standard auto reverse cleaning kit and cloth mesh filter.

2) Accessory Option

- For temporary storage of material, SCH-6L storage hopper is available for SAL-330/360.
- SPV-U is an optional selection for SAL-330/360. (Including control cabinet).
- Buzzer is an optional selection.
- Manual control switch is optional.



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 12, 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.

Headquarter and Taipei factory:

Tel: (886) 2 2680 9119

Shini Plastics Technologies (Dongguan), Inc:

Tel: (86) 769 8111 6600

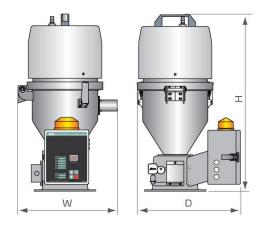
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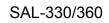
Tel: (91) 250 3021 166



## 1.3 Technical Specifications

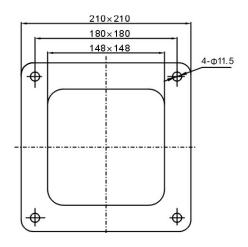
1.3.1 External Dimensions



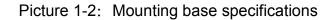




1.3.2 Mounting Base Specifications

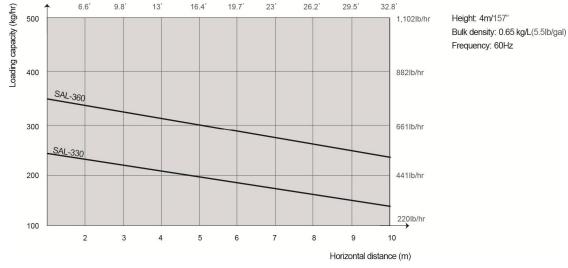


SAL-330/360





#### 1.3.3 Loading Capacity



Picture 1-3: Loading capacity

#### 1.3.4 Specification List

Table 1-1: Specifica	tion	list
----------------------	------	------

Model	SAL-330	SAL-360
Ver.	В	В
Motor Type	Carbon brush	Carbon brush
MotorPower(kW)(50 / 60Hz)	1.15	1.15
Conveying Pipe Dia.(Inch)	1.5	1.5
Conveying Capacity (kg / hr, 50Hz)	200	300
Hopper Capacity (L)	3	6
Input Voltage		1⊕,230V,50Hz
Material Level Control	Microswitch	Microswitch
Cloth Filter	Standard	Standard
Auto-cleaning	Standard	Standard
Dimensions		
H(mm)	610	670
W(mm)	345	385
D(mm)	355	380
Weight (kg)	13	14

Note: 1) For hopper inside polished ones, add "P" at model behind.

2) Test condition of conveying capacity: Plastic material of bulk density 0.65kg/L, dia. 3~5 mm, vertical conveying height: 4m, horizontal conveying distance: 1m.V.



## 1.4 Safety Regulations

Please abide by the safety guide when you operate the machine so as to prevent damage of the machine and personal injuries.



## Attention!

All electrical components should be installed by qualified electricians. Turn off main switch and control switch during repair and maintenance.



Warning! High voltage!

This mark is attached on the cover of the control box.



Warning! Be careful!

Be more careful when this mark appears.

Transportation and Storage of the Machine

Transportation

- 1) SAL series hopper loader are packed in paper cartons. Handle with care when to move the machine by hands.
- Do not rotate the machine and avoid collision with other objects during transportation to prevent improper functioning.
- 4) The structure of the machine is well-balanced, although it should also be handled with care when lifting the machine for fear of falling down.
- 5) The machine and its attached parts can be kept at a temperature from -25°C to +55°C for long distance transportation and for a short distance, it can be transported with temperature under +70°C.

#### Storage

- 1) SAL series hopper loader should be stored indoors with temperature kept from 5  $^{\circ}$ C to 40  $^{\circ}$ C and humidity below 80%.
- 2) Disconnect all power supply and turn off main switch and control switch.
- Keep the whole machine, especially the electrical components away from water to avoid potential troubles caused by the water.
- 4) Plastic film should be used to protect the machine from dust and rains.

Working Environment



The machine should be operated:

1) Indoors in a dry environment with max. temperature +45  $^\circ\!\!\!C$  and humidity nomore than 80%.

Do not use the machine:

- 1) If it is with a damaged cord.
- 2) On a wet floor or when it is exposed to rain to avoid electrical shock.
- If it has been dropped or damaged until it is checked or fixed by a qualified serviceman.
- 4) This equipment works normally in the environment with altitude within 3000m.
- 5) At least a clearance of 1m surrounding the equipment is required during operation. Keep this equipment away from flammable sources at least two meters.
- 6) Avoid vibration, magnetic disturbance at the operation area.

#### Rejected Parts Disposal

When the equipment has run out its life time and can not be used any more, unplug the power supply and dispose of it properly according to local code.

Fire Hazard!

In case of fire,  $CO_2$  dry powder fire extinguisher should be applied.

## 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:

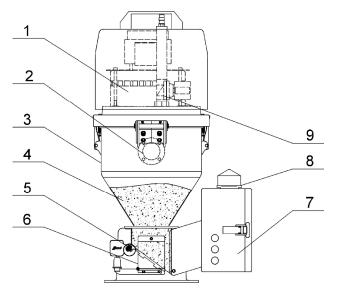
- 1. Any careless or man-made installations, operation and maintenances upon machines without referring to the manual prior to machine using.
- 2. Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible 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 Working Principle

SAL-330/360 series are suitable for conveying plastic granules. The blower makes vacuum of material hopper by drawing the air out. Materials will then be sent into material hopper.



Picture 2-1: Working principle of SAL-330/360

1. Carbon brush blower2. Material inlet pipe3. Storage hopper4. Material5. Discharging plate6. Microswitch

8. Alarm light

7. Control box

9.Reverse cleaning device

After starting the machine, reverse cleaning device (9) begins to wash the dust covered in the hop- pocket and hopper. After that, carbon brush blower (1) starts to work and produces vacuum in the storage hopper (3). Meanwhile, close the discharging plate (5), and the material in the storage bucket will be conveyed through material inlet pipe (2) into the material storage hopper (3) under the function of minus pressure and the air flow. After finishing material suction, carbon brush blower(1) stops working and the materials(4) will fall down by self-gravity. When microswitch (6) detects that no materials remain in the storage hopper(3), and after the dust get through the reverse cleaning device(9), the carbon brush blower(1) starts to work again. When blower cannot suck

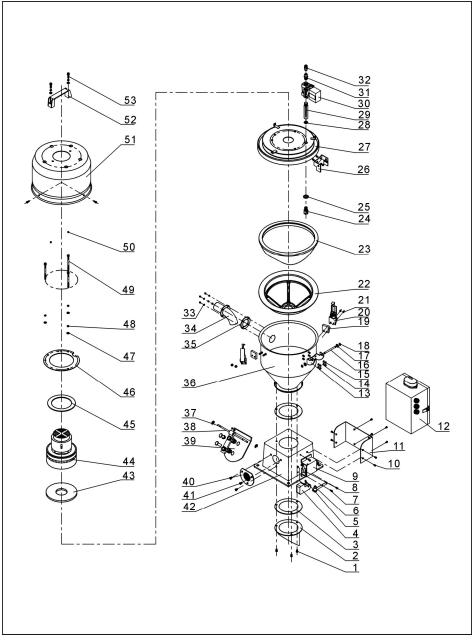


materials from the storage bucket, the alarm light (8) in the control box (7) will be blinking to indicate that the materials are not enough.

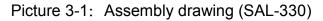


## 3. Assembly Drawing

## 3.1 Assembly Drawing (SAL-330)



Remarks: Please refer to material list 11.2 for specific explanation of the Arabic numbers in parts drawing.





## 3.2 Parts List (SAL-330)

Table 3-1:	Parts list(SL-330)
------------	--------------------

NO.	Past Name	Part NO.
1	Cross socket head cap screw M5×20	YW62041200000
2	Discharging port	BL20333600020
3	Base fastener	YR1000000600
4	Counter weight hammer	YW20602100000
5	Set screw M5×5	YW68005500000
6	Ejector pin assembly	BH10000600050
7	Cross socket head cap screw M4×10	YW63041000000
8	Microswitch	YE14511200000
9	Microswitch box	YR40330900000
10	Cross socket head cap screw M5×10	YW62051000100
11	Control box fixing plate	BL20333600120
12	Control box	BH32336000350
13	Lower hinge	BL32000600140
14	Flat washer 5	YW66051000100
15	Locknut M5	YW64000500000
16	Hinge pin	BH10006003110
17	Flat washer 8	YW66082200100
18	E-rings 6	YW66000600000
19	Snap hook block	YR40000600300
20	Snap hook	YW02003000400
21	Locknut M4×0.7	YW64040700100
22	Split washer of filter cloth **	YR40003000100
23	Filter bag**	BP82003000044
24	Reverse cleaning pipe nozzle	BH13033000810
25	Washer	BP62201000050
26	Upper hinge	BL32000600240
27	Hopper cover	BL21033000160
28	Connection nut	BH12030400410
29	Connector 2	BH13030300010
30	Solenoid valve	YE32213100000
31	Connector 3	BH13031100010
32	Thread direct connector	YW80081400000
33	Flat washer 4	YW66040800000
34	Material inlet pipe	BL32333600020
35	Material inlet pipe fastener	YR10150300000

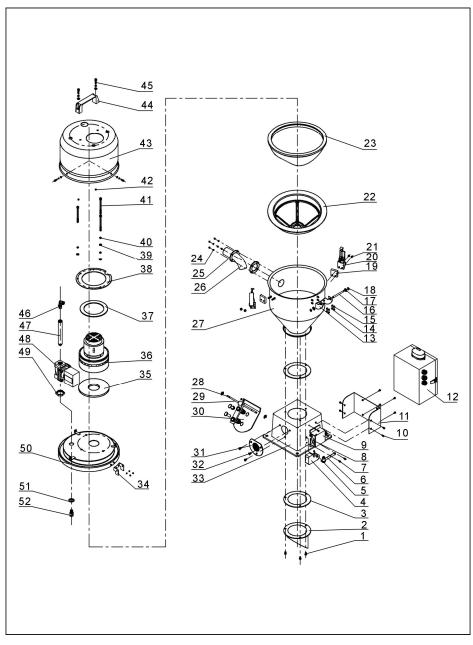


36	Storage hopper	-
37	E-rings 5	YW66000300000
38	Iron rod	BH11061400010
39	Material discharging plate assembly	BH90601200050
40	Air vent window	YR40002400000
41	Cross socket head cap screw M6×10	YW62061000000
42	Square base	BA10040000210
43	Motor fastener(lower) **	YR10135500000
44	Carbon brush blower**	YM30965600000
45	Motor fastener(upper) **	YP62141200000
46	Motor fixing plate	BL21000300420
47	Flat washer 6	YW66061300000
48	Spring washer 6	YW6500600000
49	Inner hexagon column screw M6×90	YW61069000100
50	Locknut M6	YW64000600200
51	Cover	YR40033000000
52	L120 aluminum square handle	BW20012000040
53	Inner hexagon column screw M6×20	YW61062000200

\* means possible broken parts. \*\* means easy broken part. and spare backup is suggested. Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.



## 3.3 Assembly Drawing (SAL-360)



Remarks: Please refer to material list 11.4 for specific explanation of the Arabic numbers in parts drawing.

#### Picture 3-2: Assembly drawing (SAL-360)



## 3.4 Parts List (SAL-360)

NO.	Past Name	Part NO.
1	Cross socket head cap screw M5×20	YW62041200000
2	Discharging port	BL20333600020
3	Base fastener	YR1000000600
4	Counter weight hammer	YW20602100000
5	Set screw M5×5	YW68005500000
6	Ejector pin assembly	BH10000600050
7	Cross socket head cap screw M4×10	YW63041000000
8	Microswitch	YE14511200000
9	Microswitch box	YR40330900000
10	Cross socket head cap screw M5×10	YW62051000100
11	Control box fixing plate	BL20333600120
12	Control box	BH32336000350
13	Lower hinge	BL32000600140
14	Flat washer 5	YW66051000100
15	Locknut M5	YW64000500000
16	Hinge pin	BH10006003110
17	Flat washer 8	YW66082200100
18	E-rings 6	YW66000600000
19	Snap hook block	YR40000600300
20	Snap hook**	YW02003000400
21	Locknut M4×0.7	YW64040700100
22	Filter bag**	YR40006000000
23	Filter cloth **	BP82006000044
24	Flat washer 4	YW66040800000
25	Material inlet pipe	BL32000600020
26	Material inlet pipe fastener	YR10000600300
27	Storage hopper	-
28	E-rings 5	YW66000300000
29	Iron rod	BH11061400010
30	Material discharging plate assembly SAL	BH90601200050
31	Air vent window	YR40002400000
32	Cross socket head cap screw M6×10	YW62061000000
33	Square base	BA10040000210
34	Upper hinge	BL32000600240
35	Motor fastener (lower) **	YR10135500000



36	Carbon brush motor **	YM30965600000
37	Motor fastener(upper) **	YP62141200000
38	Motor fixing plate	BL21000300420
39	Flat washer 6	YW66061300000
40	Spring washer 6	YW6500600000
41	Inner hexagon column screw M6×90	YW61069000100
42	Locknut M6	YW64000600200
43	Cover	BR40036000010
44	L120 aluminum square handle	BW20012000040
45	Inner hexagon column screw M6×20	YW61062000200
46	L-type thread connector	YW80081400100
47	Connector 2	BH13030300010
48	Solenoid valve	YE32213100000
49	Connection nut	BH12030400410
50	Hopper cover	-
51	Washer	BP62201000050
52	Reverse cleaning pipe nozzle	BH13033000810

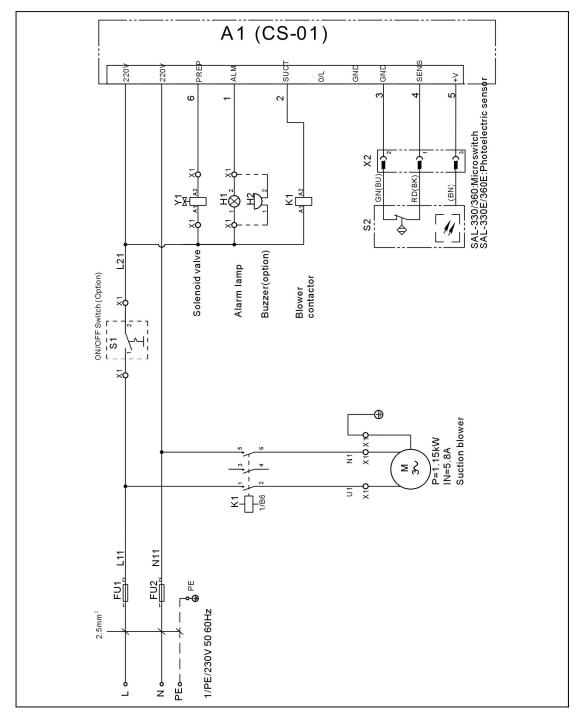
\* means possible broken parts. \*\* means easy broken part. and spare backup is suggested.

Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.



## 4. Electrical Circuit Diagram

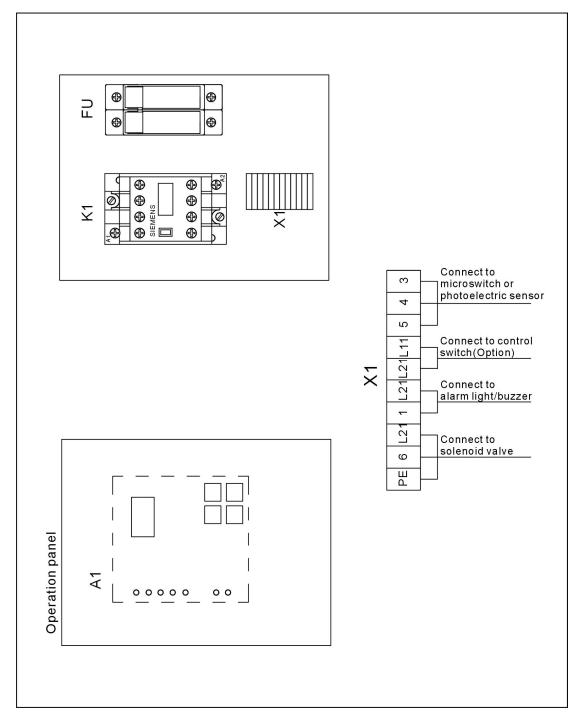
## 4.1 Electrical Diagram







# 4.2 Electrical Components Layout and Terminal Connection Diagram



Picture 4-2: Electrical components layout and terminal connection diagram



## 4.3 Electrical Components List

NO.	Symbol	Parts Name	Specification	Part No.
1	FU1 U2	Fuse base	1P	YE41142000000
2	-	Fuse**	10A	YE46010000100
3	K1	Contactors**	220VAC 50/60Hz	YE00601621000
4	H1	Alarm light	220VAC 50/60Hz	YE83305100200
5	H2	Buzzer	220VAC 50/60Hz	YE84003500000
6	A1	Circuit board**	220VAC 50/60Hz	YE80122000000
7	S1	Control switch	250V 10A	YE10030300000
8	S2	Microswith*	400V 10A	YE14511200000
9	-	Photoelectric sensor	10-30VDC	YE15143900000
10	X1	Terminal board	2.5mm <sup>2</sup>	YE61250040000
11	-	-	2.5mm <sup>2</sup>	YE61250040000
12	-	-	2.5mm <sup>2</sup> PE	YE61253500000
13	М	Blower	1.15KW	-

#### Table 4-1: Electrical components list

\* means possible broken parts. \*\* means easy broken part. and spare backup is suggested.

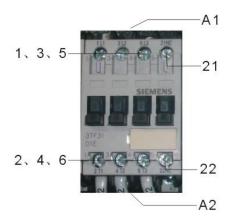
Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

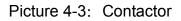


## 4.4 Main Electrical Components Description

#### 4.4.1 AC Contactor

It is mainly used to connect and disconnect power supply





A1-A2: Contactor coil

21-22: Contact 21-2. 3-4. 5-6: Main contact

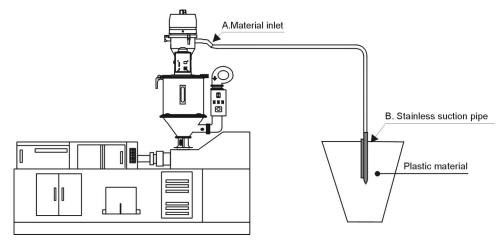


## 5. Installation and Debugging

Make a careful study of this chapter before installation.

The machine must be installed according to the steps below. Power supply should be connected by qualified electricians.

- 5.1 Installation of SAL-330 / 360
  - 5.1.1 Installation Methods of SAL-330 / 360



Picture 5-1: Installation methods of SAL-330/360

Notes for Installation and Positioning:

- 1) Machine just can be mounted in vertical position. Make sure there's no pipe, fixed structure or other objects above the installing location and around the machine which may block machine's installation, hit objects or injure human person.
- 2) For easy maintenance, it's suggested to leave 1m space around the machine.
- 3) Machine should be placed on water-level surface. If it needs to be mounted on a higher surface (e.g. the scaffold or the interlayer), should ensure its structure and size could bear the weight and size of the machine.

#### Machine Installation

Install the whole suction machine (SAL-330 / 360) onto the hopper dryer (see the picture above), fix the four fixation holes in the mounting base. Connect one



end of the conveying hose to material inlet (A), and the other end to the stainless suction pipe (B), then insert the pipe into the storage tank.

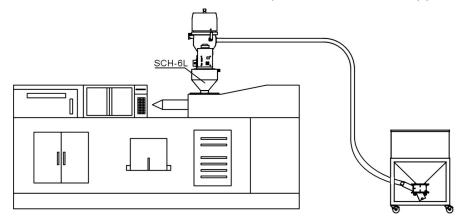
#### **Circuit Connection**

The machine requires compressed air to finish filter cleaning function, so please connect to the compressed air. The pressure of compressed air: 4~6kgf/cm<sup>2</sup>



Please make sure that the main power is shut off when you connect the machine with power supply!

5.1.2 Installation Methods of SAL-330/360 Optional Collective Hopper SCH-6L



Picture 5-2: Installation method of optional SCH-6L

Machine Installation

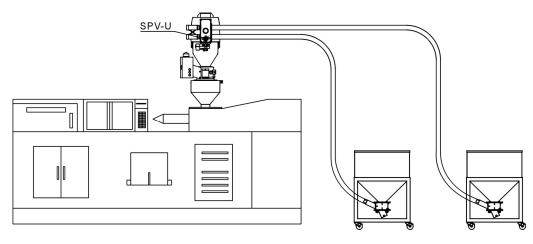
Mount SCH-6L at the material inlet of molding machine, point it to the mounting holes and lock up with screws. Mount hopper loader onto the SCH-6L, point it to the mounting holes and lock up the screws. Connect one end of material pipe to suction inlet of the hopper loader, insert the other end in the hopper.

#### Circuit Connection

The machine requires compressed air to finish filter cleaning function, so please connect to the compressed air. The pressure of compressed air: 4~6kgf/cm<sup>2</sup>



5.1.3 Installation Methods of SAL-330/360 Optional Proportional Valve SPV-U



Picture 5-3: Installation method of optional SPV-U

Machine Installation

Mount SPV-U at material inlet of SAL-330/360, connect two material inlets of SPV-U to two feeding pipes respectively, insert another end of the feeding pipes in the hoppers.

**Circuit Connection** 

The machine requires compressed air to finish filter cleaning function, so please connect to the compressed air. The pressure of compressed air:  $4 \sim 6 \text{kgf/cm}^2$ 



### 5.2 Installation Space

During installation of the machine, keep at least 1m installation space around the machine as shown by the picture.

Do not install the machine in a position crowded with other objects. This would cause inconvenience to operation, maintenance and repair.

Do not sit on the machine.

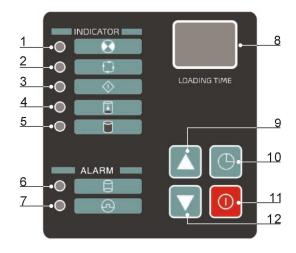
Keep away flammable and explosive goods.



Picture 5-4: Installation space



## 6. Application and Operation



Picture 6-1: Control panel

Table 6-1:	Control pa	nel description
------------	------------	-----------------

No.	Description	Function
1	Power indicator	Machine power on
2	Operation indicator	Machine run or stop
3	Preparation indicator	Suction preparation
4	Suction indicator	Material suction
5	Full load indicator	Hopper full load
6	Shortage indicator	Material shortage
7	Overload indicator	Motor alarm
8	Time/parameter display	Display the time/parameter
9	Increase key	Add the value
10	Set key	Enter parameter setting
11	Start/stop key	Machine start/stop control
12	Decrease key	Decrease the value



#### 6.1 Control Panel

- 1. Press <sup>(C)</sup> to set a proper conveying time of material. For commonly used materials, set the conveying time as 20 seconds.
- 2. Press to make the machine start loading material. Press again to

stop working of the machine.

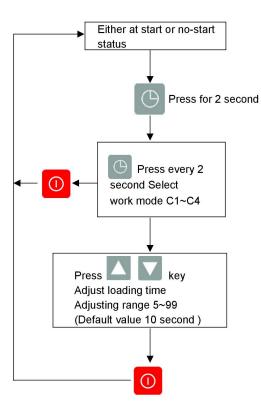
The machine will stop working and sound the alarm at the time of material shortage. Press to switch off the machine. After adding material or fixing the problem, press to make the machine resume working.

Please clean the filter screen periodically to keep effective suction power.

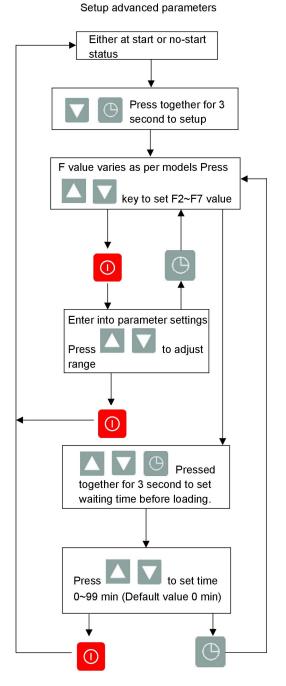


## 6.2 Function Setup

#### 6.2.1 Setup



Setup loading mode and time





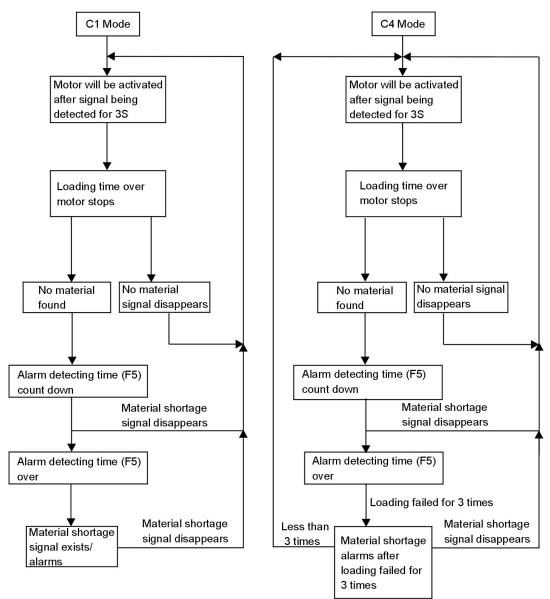
#### 6.2.2 Actions

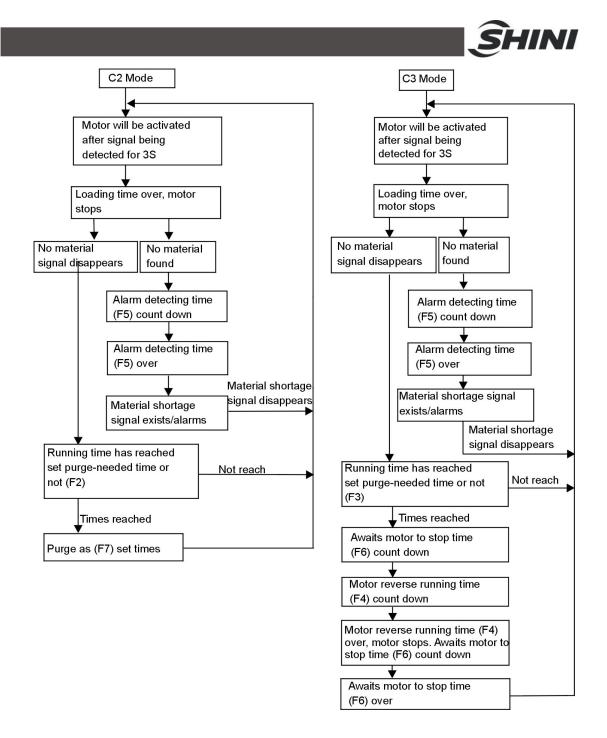
- 1. Press down <sup>()</sup> to switch between start / stop status.
- 2. Press key to select loading mode.

Mode	Meaning	Suitable model
C1	Auto loading, material shortage alarms whenever no	Applicable to SAL-700G / 800G
	material being loaded.	models
C2	After auto loading, purge as per set period and times.	Applicable to SAL-330 / 360 models
C3	Motor reverse running for dust separating.	Applicable to SAL-430 / 460 models
64	Auto loading, material shortage alarms after three	Applicable to SAL-700G / 800G
C4	time no material being loaded.	models

- 3. At standby state, the seven sectional display will display loading time.
- 4. Action flow:









#### 6.2.3 Parameter List

Code	Status	Default Value	Adjusting Range	Mode
F2	Necessary spray washing times every several times for operation	3times	1~10 times	C2
F3	Necessary cleaning times for reverse running every several times of operation	3 times	1~10 times	C3
F4	Motor reverse running time	10sec	5~30 sec	C3
F5	Alarm detecting time	20 sec	10~40 sec	C1,C2,C3,C4
F6	Awaits motor to stop time	30 sec	30~99 sec	C3
F7	Purge times	2 times	1~5 times	C2
F8	Loading latency time	0	0~99 times	C1,C2,C3,C4

#### 6.2.4 Other Settings

- 1. Any setting before power on will be saved automatically and back to shut off state after 5 second of no operation.
- 2. Any setting after power on will be saved automatically and back to standby state after 5 second of no operation.
- 3. No material shortage signal is being detected even after all action is over, then if press ▲ ▼ key for 3 second, motor will perform reverse running action, when release the ▲ ▼ keys to stop motor and await the motor stop count down and back to standby state to detect material shortage signal. (The function only suitable for SAL-430/460 model)
- 4. Function of the jumper: functions of C1, C3 and C4 will be activated when jumping out which is applicable to SAL-700G / 800G / 430 / 460. When disconnected, only functions of C1, C2 and C4 are available which can be used for SAL-700G / 800G / 330 / 360.





## 7. Troubleshooting

## 7.1 Troubleshooting for SAL-330/360 Series

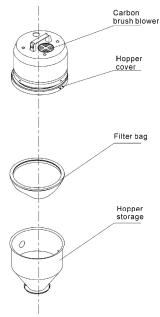
Failures	Possible Causes	Solutions
Motor does not work long after	Did not turn on main power or control switch or poor connection of the switches	Turn on main power switch and control switch and make sure they keep good contact.
material discharged	Poor connection of microswitch or photoelectrical sensor	Adjust or replace
	Signal wire broken	Refix signal wire
Motor keep on working after the hopper is full filled	Contactor malfunctions	Repair or replace contactor
Can not full-load the	Material is used up	Add material to storage bin
material for several times or alarm indicating	Leakage in conveying hose	Lock up or replace conveying hose
material shortage	Filter screen is blocked	Clear up filter screen
Motor does not work	Short of phase or motor failures	Repair or replace
Fuse melt after startup of the machine	Short circuit or motor failures	Check electrical circuit
The alarm indicating	Filter screen is blocked	After cleaning of filter screen,press Reset on the overload relay.
motor overload	Phase shortage	After fixed the circuit, press Reset on the overload relay.
Poor material liquidityin the pipe	Over or lack of air quantity	Adjust air inlet location of the suction box. Avoid small bending of the elbow.



## 8. Maintenance and Repair

All repair work should be done by professionals to prevent personal injuries and damages of the machine.

- 8.1 Filter Screen
  - For SAL-330/360 series, filter screens are fitted. They need to be cleaned periodically or at the time when conveying capacity of the machine decreases. Loosen the clips or screws at the hopper lid, take down the hopper lid and take the filter screen out. Clear up all the dusts and impurities on the filter screen to make smooth airflow through the screen so that suction power of the machine can be enhanced.



Picture 8-1: Filter screen

2) Check the status of motor perfomance. If the motor can not start or makes loud noises, repair or replace the motor.



#### 8.1.1 Service Life of Product Key Part

Name of the Parts	Service Life
Motor	Above 5 years
Contactor	Above 100,000 act

#### 8.2 Hopper

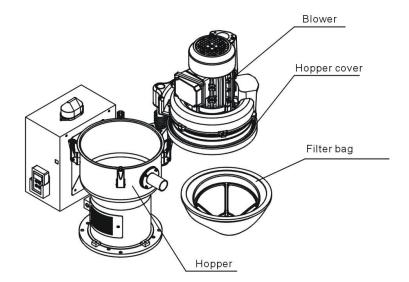
- 1) Loose the snap hook, and take out hopper cover.
- 2) Use high pressure air to blow away all the material remains.
- 3) Re-fix the hopper cover and fasten the snap hook.



please make sure that the main switch is shut off before cleaning.

#### 8.3 Cloth Filter

- 1.Loosen the spring fastener on the loader, uplift the loader cover and externally rotate it along the axis, take out the filter bag and clear away the dust on it.
- 2. Filter bag cleaning period: Daily.



Picture 8-2: Cloth filter



#### 8.4 Blower

- Clear the blower from inside out regularly. If there are too much dirts accumulated on the blower, the function of the blower will be affected, such as temperature rising, reduced air volume, higher noise level and vibration. All the above factors are liable to cause mechanical problems.
- 2) The bearing, seal ring and silencer are consumable parts. They should be replaced after a period of time. The fans, covers, and metal screen also need to be replaced when necessary.

<u> Î</u>
8.5 Maintenance Schedule
8.5.1 About the Machine Model: SN: Manufacturing date:
Voltage: $\Phi$ V Frequency: Hz Total power:Kw
8.5.2 Check after Installation Check that the conveying hose is correctly connected.
Check that the conveying hose is tightly connected.
Check that the mounting base is tightly fixed.
Electrical Specifications
Voltage: V Hz
Fuse burnt current: One phase A Three-phase A
Check phase sequence of power supply
8.5.3 Daily Checking Check main power switch
Check filter screen
Check motor performance
8.5.4 Weekly Checking
Check if there are damaged electrical wires
Check if there are loose connections of electrical components
Check if the screws of flange at material inlet are loose or not
8.5.5 Monthly Check
Check the spring lock on the hopper cover is loosed or not.
Check the non-return valve is deformed or not.
Check the performance of magnetic proximity switch/photoelectrical sensor