SDS Series

Dust Separator

Date: Sep., 2020

Version: Ver.D (English)

SHINI

Contents

Table Index

Picture Index

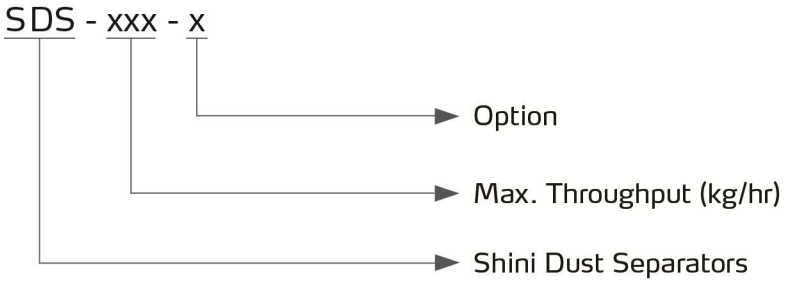
1. General Description

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

SDS is suitable for removing dust in plastic materials such as PET, PA, and PC etc. It is not used for dealing with plastic recycled materials. Please inform us as the material need anomalous temperature or close-loop circulation after drying. SDS-100/250 is only applicable for the dust-separating of virgin material; SDS-500 is applicable on the floor mount.

Model: SDS-500

1.1 Coding Principle



1.2 Feature

- Air inlet is designed for regulation of air flow.
- Easily removed, installation and operation are also convenient.
- All surfaces in contact with material are made of stainless steel to eliminate material contamination.
- Equipped with rotary speed adjustable motor to adjust the feeding amount according to actual demand.
- The static eliminator quickly neutralize static electricity on the surface of material.
- The material suction blower is protected from dust by the easy-maintenance air filter and dust collection barrel.
- SDS-500 has alarm indicator for quick fault indicating.
- SDS-500 has material loading blower and photosensor hopper to perform automatic material loading.
- The efficiency of dust separating can reach 80%.

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.

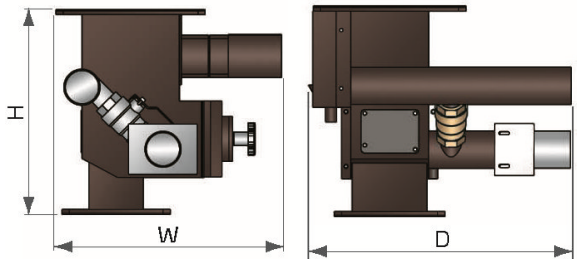
Headquarter and Taipei factory：
Tel: (886) 2 2680 9119

Shini Plastics Technologies (Dongguan), Inc：
Tel: (86) 769 8111 6600

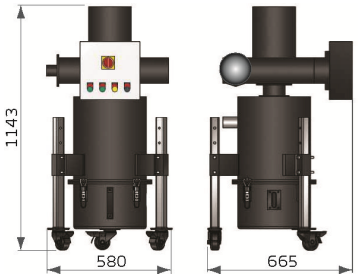
Shini Plastics Technologies India Pvt.Ltd.：
Tel: (91) 250 3021 166

1.3 Technical Specifications

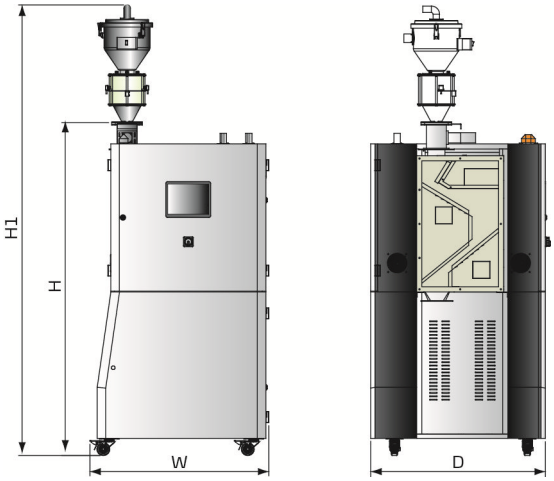
1.3.1 Technical Specifications



SDS-100/250 Dust Separator



Dust Collecting Barrel



SDS-500

Picture 1-1: Outer Dimensions

1.3.2 Specifications

Table 1-1: Specifications

Model	SDS-100	SDS-250	SDS-500
Ver.	A	A	D
Conveying Blower (kW) (50 / 60Hz)	N / A	N / A	1.5
Dust Separating Blower (kW) (50 / 60Hz)	0.55	0.55	2.2
Feeding hopper	N / A	N / A	SHR-12U-E
Max. Throughput (kg / hr)	100	250	500
Suction Box	N / A	N / A	Option
Material Tank	N / A	N / A	Option
H(H1)×W×D (mm)	290×315×360	460×415×420	1900(2550)×1120×1010
Weight (kg)			

Notes: 1) Max. output capacity is based on the test criteria of continually processing pellet of 2~3 mm in dia. and 0.65 in density.

2) SDS-500 applicable to pellet dedusting and if for processing regrind, the output will be just around 60% of the normal output.

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

We reserve the right to change specifications without prior notice

1.4 Safety Regulations

Operate the machine according to the safety regulations below to avoid personal injuries or damage of the machine.

Electrical installation should be done by qualified electricians.

1.4.1 Safety Signs and Labels

Turn off the main switch and system switch before servicing and maintenance.

Warning! High voltage!

This sign is attached on the cover of control box!

Warning! Be careful!

Be more careful 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 Transportation and Storage of the Machine

Transportation and storage of the machine

1) SDS series compact dust separator are packed in crates or plywood cases with wooden pallet at the bottom, suitable for quick positioning by fork lift.
2) After unpacked, castors equipped on the machine can be used for ease of movement.
3) 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℃ to +55℃ for long distance transportation and for a short distance, it can be transported with temperature under +70℃.

Storage

1) SDS series compact dust separator should be stored indoors with temperature kept from 5℃ to 40℃ and humidity below 80%.
2) Disconnect all power supply and turn off main switch and control switch.
3) 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

1) Indoors in a dry environment with max. temperature +45℃ and humidity no more 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.
3) 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.
In the event of loss or damage to a key of a trapped key interlocking device, the complete key lock unit shall be replaced.

Fire Hazard

In case of fire, Co_2 dry powder fire extinguisher should be applied.

 Feeding strip materials can give rise to an entanglement hazard.

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:

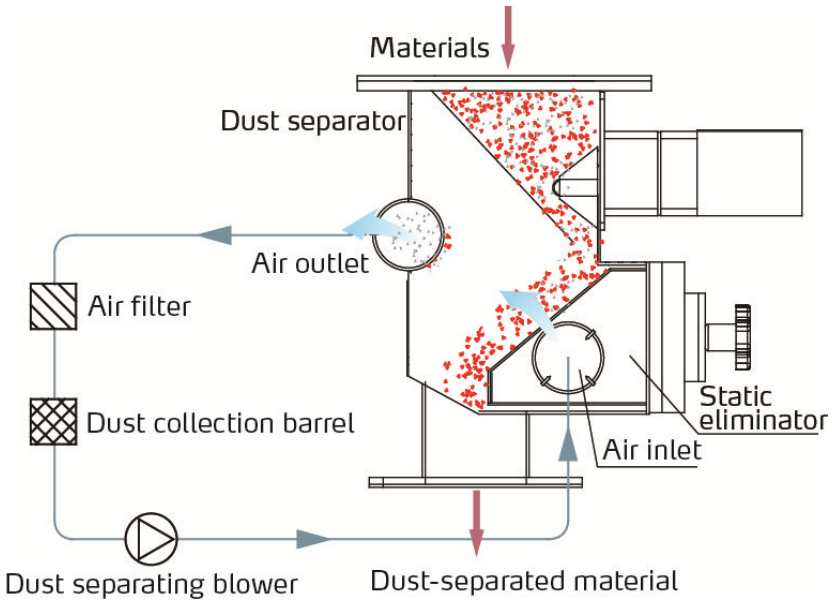
1) Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
2) Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible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

The SDS series Compact Dust Separator are equipped with a static eliminator and dust separating blower. Separated dust is removed to the dust collecting barrel by using a blower, leaving the clean and static-free material to fall into the material storage bin.

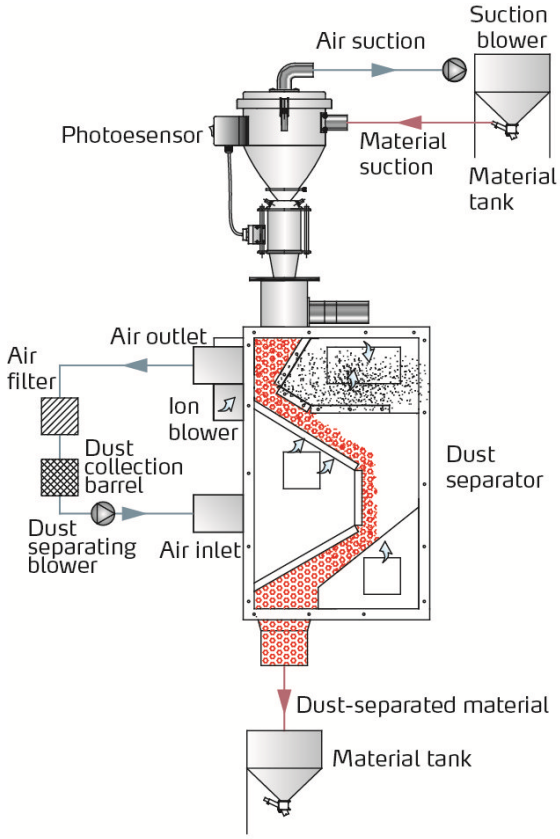
2.1.1 SDS-100/250 Working Principle



Picture 2-1: SDS-100/250 Working Principle

High pressure air with negative ions produced by static eliminator will be blown into the machine to pass through material board to eliminate and remove static's and dust from the material. Dust separated from the material will be removed to dust collecting barrel, leaving clean and static-free material to fall into material storage tank.

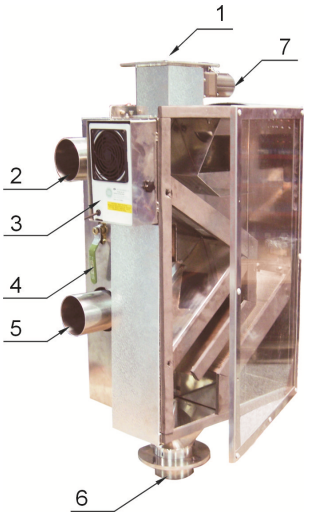
2.1.2 SDS-500 Working Principle



Picture 2-2: SDS-500 Working Principle

Turn on the main switch and system start to work. Materials are loaded into the machine through photosensor hopper. Statics in material will be eliminated by ion blower and dusts would be blown into filter by hi-pressure blower through air outlet. Impurities like dusts fall into dust collecting barrel and are blown into main body of machine with filtered air. At last, materials which have been dust-sepaated will load to material storage tank. A dust separating circle is finished like this.

2.1.3 Dust Separator



Names of Parts:

1. Material inlet 2. Air outlet 3. Static eliminator 4. Air adjusting handle
5. Air inlet 6. Material outlet 7. Gear motor

Picture 2-3: Dust Separator

2.1.4 Static Eliminator

Operation temperature: 0℃~50℃

Turn the adjustor clockwise to switch on the blower. It will produce ionized air flow. Turn the adjustor clockwise to increase air volume, turn it anti-clockwise to turn it off. (Air volume is adjusted to the maximum at delivery.)

Picture 2-4: Static Eliminator

2.2 Main Electrical Components Description

2.2.1 AC contactor

It is mainly used for connect through and cut off power supply over long distance.

A1、A2: Contactor coil
13、14: NC contact
21、22: NO contact

Picture 2-5: AC contactor

2.2.2 Photo Electrical Sensor

1) It is used to detect material level.
2) A pair of photo electrical sensors is fixed on the screw bolt of glass tube.

Picture 2-6: Photo Electrical Sensor

2.2.3 Speed Adjuster of Discharge Motor

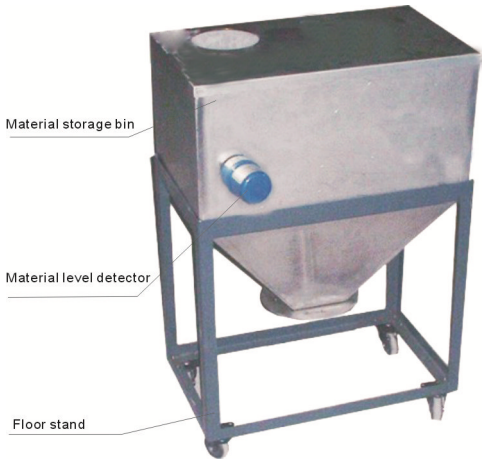
Turn around the transparent cover of the adjuster to adjust material discharge motor speed.

Picture 2-7: Speed Adjuster of Discharge Motor

2.3 Optional Accessories

2.3.1 Material Storage Bin with Mobile Stand

1) Material storage bin with mobile stand for ease of moving and cleaning.
2) When material storage bin is full loaded, material level detector will stop material loading.
3) The suction box, euro-style in appearance design, work with dryer with floor stand and vacuum loader, suitable for material suction and discharging.



Picture 2-8: Material Storage Bin with Mobile Stand

2.3.2 Other Options

- SDS-100/250 can optionally collocate with "Standard" Hopper Loader to realize the automatic material conveying.
- For model with polishing inside dust separator, add "P" at the end of the model code.

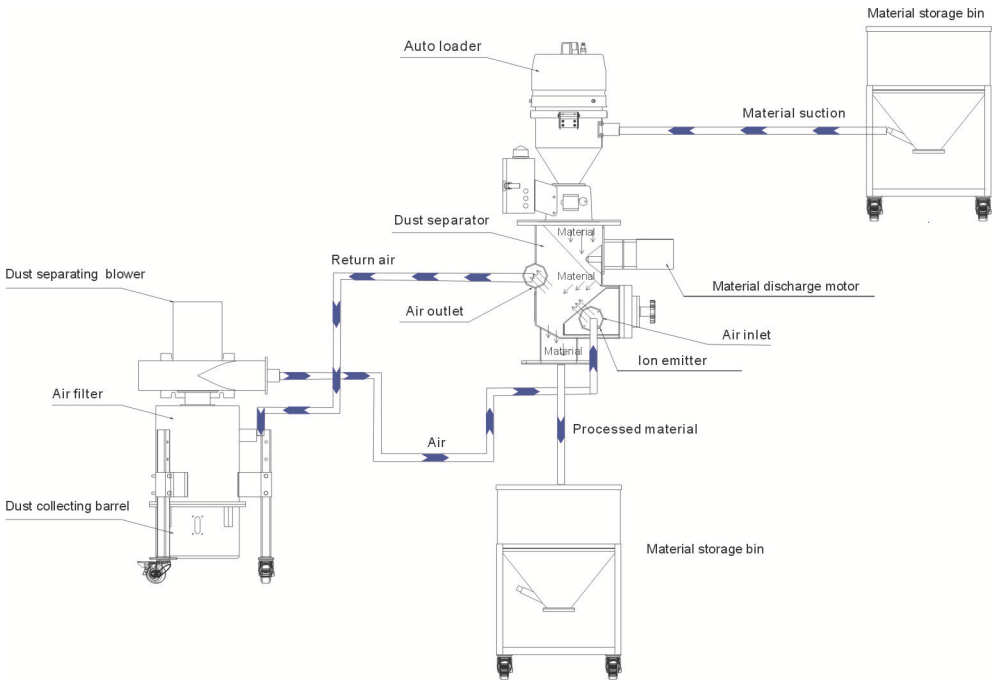
3. Installation and Debugging

Please read this chapter before installation, and install the machine according to the following steps!

Note: Power supply of the machine should be connected by qualified electricians!

3.1 Installation of SDS-100/250

3.1.1 SDS-100/250 Installation Principle



Picture 3-1: SDS-100/250 Installation Principle

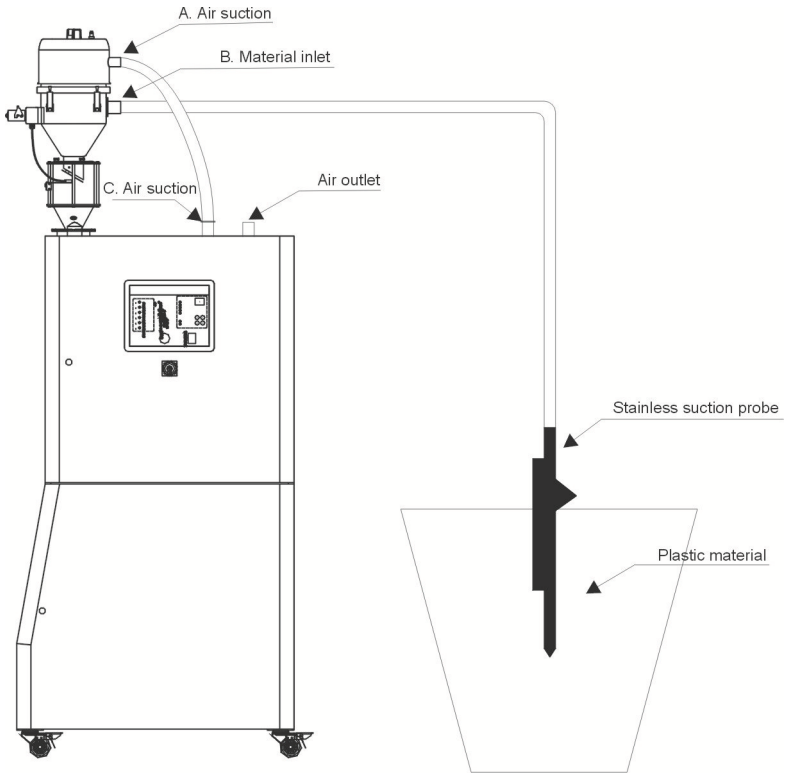
3.1.2 Power Supply of SDS-100/250

SDS-100/250 can be connected with AC3Φ230/400/460/575V power and the earth wire.

Note: Make sure power supply is turned off before fixing electrical wires!

3.2 Installation of SDS-500

3.2.1 SDS-500 Installation Principle



Picture 3-2: SDS-500 Installation Principle

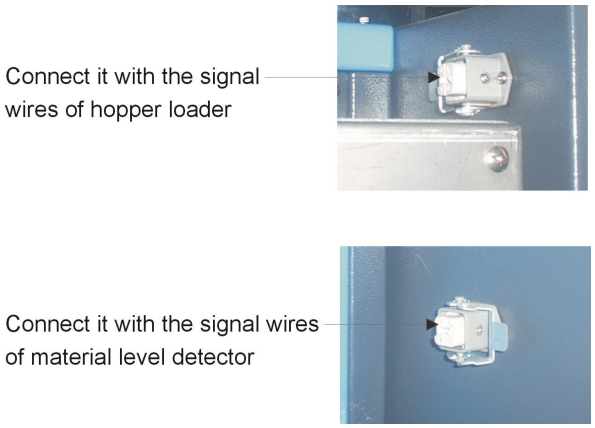
1) Locate the machine on a water-level floor and lock the castor.
2) Install the photoelectrical hopper loader onto the machine and connect the signal wires with dust separator.
3) Use a length of steel-wire to connect air suction port of the loader with that of the machine. Connect material inlet with stainless suction probe of material storage bin.

3.2.2 SDS-500 Power Supply

Make sure that power supply is the same as required before installation. SDS-500/300(500) should be connected with AC3Φ400V power supply or other specifications according to customers' requirement.

Note: Make sure that power supply is turned off when fixing electrical wires!

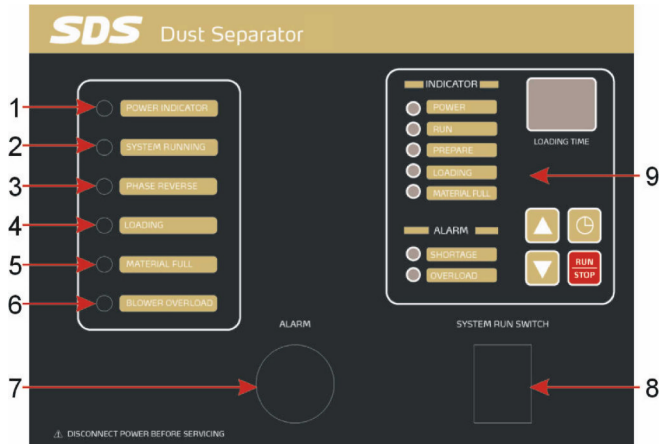
3.2.3 Connect the Signal Wires of SDS-500



Picture 3-3: Connect the Signal Wires of SDS-500

4. Application and Operation

4.1 Control Panel (SDS-500)



Picture 4-1: Control Panel (SDS-500)

4.2 Operation Steps

1) Before turning on the main switch, open the control box to set LOGO! parameters. Then turn off the machine. (If parameters are already set, neglect this step.)
2) Turn on main switch. Power indicator is on, and the machine ready to run.
3) Turn on the system switch to start the system.
4) Turn off the machine: Turn off the system switch, material loader will stop working, but dust separating blower stops after 60 seconds delay, and then turn off the main switch.

Note: Do not turn off the machine when there are still materials in the material hopper during operation.

4.3 Machine Indicators

No.	Name	Function description	Remarks
1	Power indicator	The green light is on when turning on the machine.	Do not remove any electrical parts or touch any terminals of the machine when the machine is turned on to avoid electrical shock.
2	System running indicator	Indicate process of dust separation.	
3	Power backward indicator	Indicate error of power wire connecting. System can not start and sound alarm.	Exchanging the connected location of two power line can remove the trouble.
4	Material conveying alarm light	When motor overload of material conveying blower occurs, the red alarm light is on and buzzer sounds.	Feeding material can remove the trouble.
5	Material storage bin full-receiver indicator	Indicate full material and sound alarm, system is in a delaying stop condition.	After cleaning material storage bin, can get rid of removal of dust.
6	Blower overload alarm light	When motor overload of dust separating blower occurs, the red alarm light is on and buzzer sounds. System stop working.	Check whether motor cannot rotate or bearing was broke, if motor is OK, then check whether the current setting of thermal overload relay in the electrical control box is too small. After remove these troubles for 1 minute, press blue button “RESET” on the thermal overload relay to reset it and alarm.
7	Buzzer	Sound alarm.	
8	System running switch.	Start/stop dust separating process.	Position 0: stop running Position 1: start running
9	Control panel of material conveying	Start/stop material conveying process. Setting/display conveying time.	Please refer to parameters setting 4.4 of material conveying for further operation methods.

4.4 Loading Parameters Setting (SDS-500)

Picture 4-2: Loading Parameters Setting (SDS-500)

4.4.1 Control Panel

1) Press ◷ key to set a proper conveying time of material. Por commonly used materials, set the conveying time as 20 seconds.
2) Press RUN/STOP key to start the machine, and then loading material automatically. Repress RUN/STOP key to stop working.

4.4.2 Attentions

1) The machine will stop working automatically and sound the alarm at the time of material shortage, press RUN/STOP key to switch off the machine. Press RUN/STOP to make the machine resume working after adding material or fixing the problem.
2) Please clean the filter screen periodically to keep effective suction power.

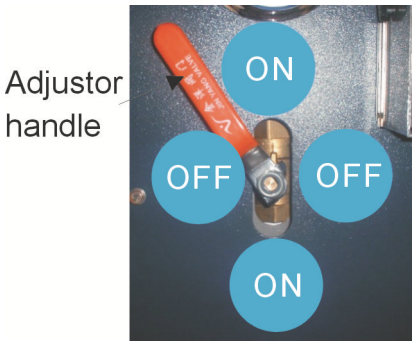
4.5 Control Process

When turn on the main power switch, the power indicator is on and after closing switch S1 the system start to work. Meanwhile dust separating blower start to work. If there is no material in photosensor hopper, material loading signal will be input to the loading control panel, which will send a signal to start the conveying blower. After certain time of conveying, the conveying blower will stop working. When there is no material in the photosensor hopper, conveying blower start

again, repeating the cycle continuously. Turn off switch S1, the conveying blower will stop working, and dust separating blower will be cut off after a delay of 60 seconds. When motor overload of material conveying blower occurs, the red alarm light is on and buzzer sounds. By adjusting speed governor in control box can adjust motor speed at the entrance of dust separating blower. When the height of material rise to the position of material level switch, the machine will be delayed stopping automatically.

4.6 Air Volume Adjustor

Open right upper plate of the machine. Use the adjustor handle to adjust the air volume of dust separating blower.



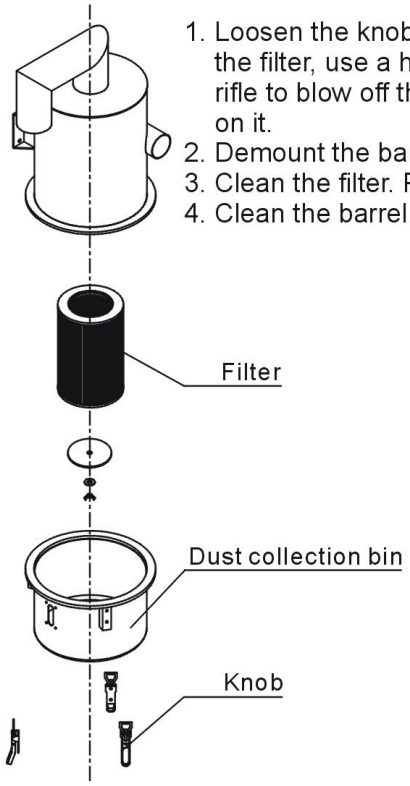
Picture 4-3: Air Volume Adjustor

5. Trouble-shooting

Fault	Possible reasons	Solution
Power indicator can not be activated after turning on the machine.	Does not collect through power supply. The switch damaged. Electrical wire problems. Transformer fuse melt. Transformer damaged	Connect through power supply. Replace the switch. Check electrical wires. Replace the fuse. Replace the transformer.
After turning on the machine, power indicator is turned on, but no display on LOGO! controller and system can not work.	Electrical wire problems. LOGO! controller damaged.	Check electrical wires. Replace the controller.
The system can not work after turning on the switch.	Electrical wire problems. LOGO! Controller is set to STOP. Material storage bin full filled or material level detector failures.	Check electrical wires. Set LOGO! controller to START. Clean material storage bin or replace material level detector.
Hopper loader does not start material loading long after material discharged.	Electrcial wire problems. Photo electrical sensor not properly fixed or damaged.	Check electrical wires. Adjust the position of photo electrical sensor or replace it.
Red alarm light is turned on.	One of the overload relays is tripping off. Material shortage.	Press Reset. Set the setting current of overload relay 1.1 times of motor rated current. Add material.
Material storage bin is full filled, but the blower is still working.	Signal wire of photo electrical sensor is connected through. Mechanical problems of contactor or contact stick together. LOGO！ controller problems.	Adjust or replace photo electrical sensor. Repair signal wires. Repair or replace the contactor. Check and replace LOGO! Controller.
Hopper loader and dust separating blower can not work.	Blower damaged. Contactor damaged. Overload relay problems. LOGO! controller is broken. Electrical wire problems.	Replace the blower. Check and replace the contactor. Check and replace the overload relay. Check and replace LOGO! Controller. Check and fix electrical wires.
Material discharge motor can not work.	Motor shaft jammed. Speed regulator is turned to zero. Electrical wire problems.	Clean the motor. Adjust the speed regulator. Check electrical wires.

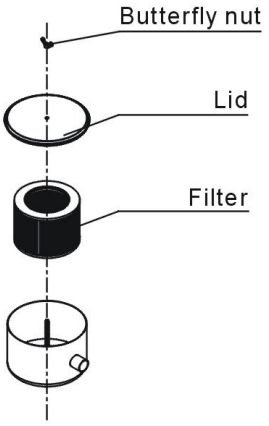
6. Maintenance and Repair

Cleaning of dust collecting barrel



1. Loosen the knob and take out the filter, use a high pressure rifle to blow off the dust in and on it.
2. Demount the barrel and clean it.
3. Clean the filter. Period: Weekly.
4. Clean the barrel. Period: Daily.

Cleaning of the filter



1. Unscrew the thumb nut and take out the filter. Use a high pressure rifle to blow off the dust in and on it.
2. Clean the filter. Period: Weekly.

6.1 Service

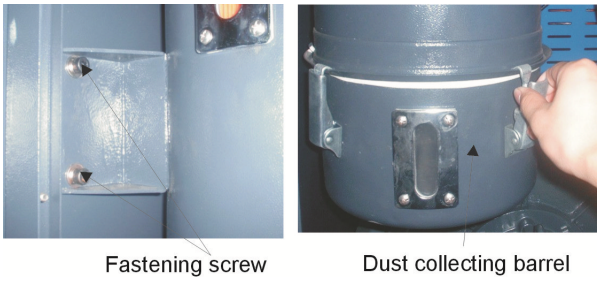
All the repair work should be done by qualified personnel to avoid personal injuries and damage of the machine.

6.2 Dust Collecting Barrel

Please clean the dust separating barrel on time. It is suggested to do the cleaning once a week.

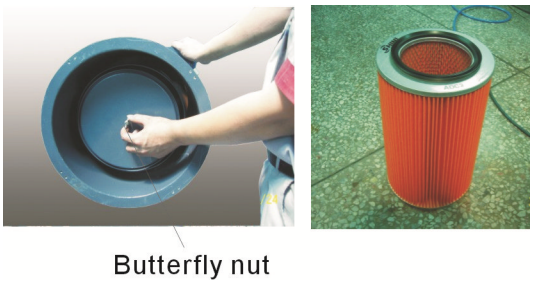
Cleaning steps:

1) Clean dust collecting barrel: loosen the fastening screw of dust separating barrel to take it down. Unlock the snap hook of dust collecting barrel to clean it.
2) Clean the air filter: loosen the snap hook to take out the filter and filter top cover. Use high pressure air to make it clean.



Picture 6-1: Dust Collecting Barrel Cleanout 1

3) Use a piece of cloth to clean the wall of dust collecting barrel.



Picture 6-2: Dust Collecting Barrel Cleanout 2

4) Install the dust collecting barrel back to the machine.

6.3 Air Filter

Please clean the air filter periodically. It is suggested to do the cleaning once a week.

Cleaning steps:

1) Take out the air filter.
2) Use high pressure air to clean the filter and filter cover.
3) Use a piece of cloth to clean air filter container.
4) Fix the air filter back to the machine in a reverse order.

Picture 6-3: Dust Collecting Barrel Cleanout

Note! Do not let any impurities fall into filter container when taking out the air filter.

6.4 Conveying Blower

1) Please clean the blower from inside out. Clear the dust on blower cover. Accumulated dust on the blower will lead to poor cooling effect, temperature rising, less air volume or even mechanical problems.
2) The bearing, seal, and muffler are consumable parts. Please replace them on time. Fans, the cover, metal grids, etc. should be replaced timely depending on the environment.

Picture 6-4: Conveying Blower

6.5 Static Eliminator

1) Emitter Cleaning:
   Clean ion emitter points: simply rotate point cleaner knob at the center of each outlet to the stop and release. Repeat this action until they are clean. It is suggested to clean emitter points once a week.
2) Air inlet and outlet cleaning:
   The air inlet grills and ionized air outlets should be kept clean to prevent restriction of air flow. They can be cleaned by soft brush or high pressure air.

Picture 6-5: Static Eliminator

Note: Cut off the power before cleaning!

6.6 Maintenance Schedule

6.6.1 About the Machine

Model _____ SN _____ Manufacture date _____

Voltage_____Φ_____V Frequency _____ Hz Power _____ kW

6.6.2 Check after Installation

☐Check that all the material conveying hoses are correctly connected.

☐Check that signal wires are correctly connected.

☐Check that the photo electrical sensor hopper is tightly fixed.

Electrical Installation

☐Voltage: _____ V _____Hz

☐Fuse melt current: 1 Phase _____ A 3 Phase _____ A

☐Check phase sequence of power supply.

6.6.3 Daily Checking

☐Check the main switch.
☐Check the cooling fan.
☐Check the status of static eliminator.
☐Check the powder blower.
☐Check the conveying blower.
☐Check material discharge motor.

6.6.4 Weekly Checking

☐Check if there are damaged electrical wires.
☐Check if there are loose electrical connections.
☐Check if there are loose joint of conveying hose.

6.6.5 Monthly Checking

☐Check the status of air filter.
☐Check mounting base of photo electrical sensor is loose or not.
☐Check the performance of photo electrical sensor.
☐Check snap hook is loose or not.