

# **SG-23E/30E**

**"Standard" Series Central Granulators**

Date: Sep., 2020

Version: Ver.C (English)





## Contents

<b>1. General Description .....</b>	<b>7</b>
1.1 Coding Principle.....	8
1.2 Feature .....	8
1.3 Technical Specifications .....	10
1.4 Safety Regulations.....	11
1.4.1 Safety signs and labels.....	11
1.4.2 Transportation and Storage of the Machine .....	12
1.5 Exemption Clause.....	14
<b>2. Structural Features and Working Principle.....</b>	<b>15</b>
2.1 General Description .....	15
2.1.1 Working Principle.....	15
2.2 Safety System.....	16
2.2.1 Emergency Stop.....	16
2.2.2 Safety Switch.....	16
2.2.3 Star Knob .....	17
2.3 Electrical Components Instruction.....	18
2.3.1 AC Contactor .....	18
2.3.2 Overheat Relay .....	18
2.4 Options .....	19
2.4.1 Full-receiver Alarm Device .....	19
2.4.2 Special Screen .....	19
2.4.3 Flywheel .....	20
2.4.4 Feed Hopper with Magnet .....	20
<b>3. Installation and Debugging .....</b>	<b>21</b>
3.1 Installation Notice.....	22
3.2 Installation Place.....	23
3.3 Installation of Blade Rest and Bearing.....	23
3.3.1 Installation of Blade Rest Shaft .....	23
3.3.2 Installation of the Flap .....	24
3.3.3 Installation of Bearing Block and Bearing.....	24

3.3.4	Installation of bearing cover.....	25
3.4	Installation of the Bearing, Belt Pulley and Belt .....	25
3.5	Installation of Screen, Screen Frame and Storage Bin.....	26
3.6	Installation of the Feed Box, Feed Port and Material Stopper.....	26
3.7	Installation of the Blade.....	27
3.8	Blades Installation Adjusting (SG-30E).....	28
<b>4.</b>	<b>Operation Guide .....</b>	<b>30</b>
4.1	Prestart Check .....	30
4.1.1	Two Hours Sfter First Start.....	30
4.2	Power Connection.....	30
4.3	Start / Stop of the Machine .....	31
4.4	Open the Feed Box.....	32
<b>5.</b>	<b>Trouble Shooting.....</b>	<b>33</b>
5.1	Granulator Can Not Work .....	33
<b>6.</b>	<b>Maintenance and Repair .....</b>	<b>34</b>
6.1	Repair .....	34
6.1.1	Changing the Blade.....	35
6.2	Transmission .....	35
6.2.1	Daily Maintenance of V-belt.....	35
6.2.2	Adjust the V-belt .....	36
6.3	Lubrication .....	37
6.3.1	Lubricating Oils.....	37
6.3.2	Lubricating Method.....	37
6.4	Maintenance .....	38
6.4.1	Daily Maintenance .....	38
6.4.2	Weekly Checking.....	38
6.4.3	Monthly Checking.....	38
6.5	Cleaning.....	39
6.6	Maintenance Schedule .....	40
6.6.1	About the Machine.....	40
6.6.2	Check After Installation.....	40
6.6.3	Daily Check .....	40
6.6.4	Weekly Check .....	40

6.6.5	Monthly Check.....	40
6.6.6	Check Half-yearly or Every 1000 Running Hours .....	41
6.6.7	3 year Checking .....	41

### Form index

Chart 1-1:	Technical Specifications .....	10
Chart 3-1:	Attached Form, Cutters and Other Fixing Screw Torque .....	22

### Picture index

Picture 1-1:	Dimensions .....	10
Picture 2-1:	Working Principle .....	15
Picture 2-2:	Emergency Stop.....	16
Picture 2-3:	Safety Switch .....	16
Picture 2-4:	Star Knob .....	17
Picture 2-5:	AC Contactor.....	18
Picture 2-6:	Overheat Relay .....	18
Picture 3-1:	Installation Space .....	22
Picture 3-2:	Installation Place .....	23
Picture 3-3:	Installation of Blade Rest Shaft .....	23
Picture 3-4:	Installation of the Flap .....	24
Picture 3-5:	Installation of Bearing Block and Bearing.....	24
Picture 3-6:	Installation of Bearing Cover .....	25
Picture 3-7:	Installation of the Bearing, Belt Pulley and Belt.....	26
Picture 3-8:	Installation of Screen, Screen Frame and Storage Bin. ....	26
Picture 3-9:	Installation of the Feed Box, Feed Port and Material Stopper .....	27
Picture 3-10:	Installation of the Blade .....	28
Picture 3-11:	Blades Installation Adjusting (SG-30E) .....	29
Picture 4-1:	Start / Stop of the Machine.....	31
Picture 6-1:	Changing the Blade.....	35
Picture 6-2:	Daily Maintenance of V-belt .....	36
Picture 6-3:	Adjust the V-belt 1 .....	36

Picture 6-4: Adjust the V-belt 2.....	37
Picture 6-5: Lubricating Method.....	37
Picture 6-6: Star Screw.....	38

# 1. General Description



Please read this manual carefully before using this machine in order to operate correctly against any damage caused due to improper operation.



Note!

Always take great care when the knives are within reach, they are very sharp and can cause personal injury.



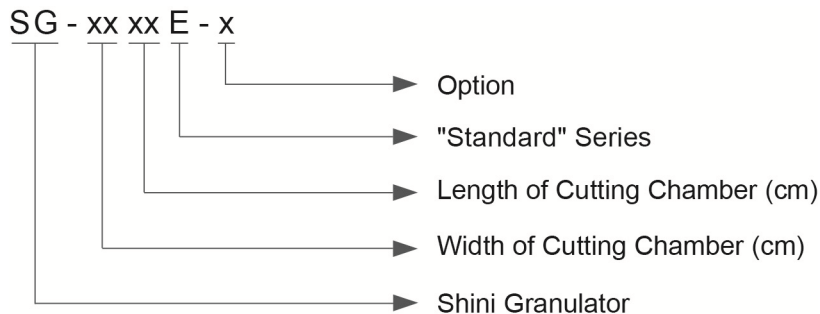
Forbidden to process flammable or toxic material!

SG-23E/30E series of "Standard" central granulators are built to conform to sound-proof models both in safety configuration and operation security. They are suitable for centralized recycling of wastes and rejected products from injection, blow moulding and extrusion lines. The granulators feature optimal structure, easy operation and quick blades changing. Staggered rotating blades can easily grab and cut through the materials and ensures low energy consumption.



Model: SG-2336E

## 1.1 Coding Principle



## 1.2 Feature

- SG-23E series adopts staggered blades design, SG-30E series adopts paddle blades design.
- The blade material is imported steel to ensure high quality and high durability.
- Staggered blades design can decentralize working load when granulating to increase cutting efficiency.
- Staggered blades retainer is designed for quick blades changing without re-adjustment.
- Paddle blades with increased blade inclination design to ensure better cutting effect and lower noise.
- Equipped with motor overload relay and multiple safety devices.
- Easy access for convenient maintenance and cleaning.
- Compact in size for saving floor space and castors for easy movement.
- Standard structure design can reduce the cost of replacement parts.
- SG-30E standard with presetting knife jig, rotating blades can be adjusted in the fixture outside the machine instead of machine inside. It makes blades adjustment must easier.



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 7, 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

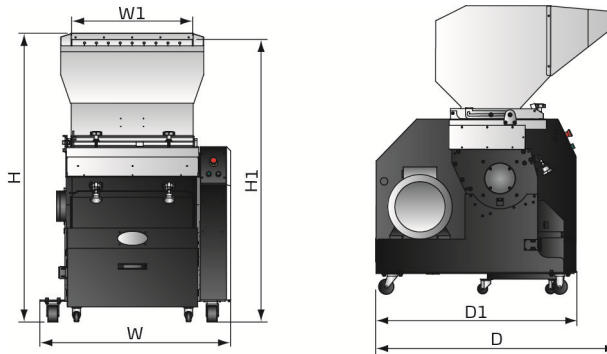
Shini Plastics Technologies (Dongguan), Inc:

Tel: (86) 769 8111 6600

Shini Plastics Technologies India Pvt.Ltd.:

Tel: (91) 250 3021 166

## 1.3 Technical Specifications



Picture 1-1: Dimensions

Chart 1-1: Technical Specifications

Model	SG-2324E	SG-2336E	SG-2348E	SG-3048E	SG-3060E
Ver.	C	C	C	C	C
Motor Power (kW, 50/60Hz)	5.5/6.3	7.5/8.6	11/12.6	11	15
Rotating Speed (rpm, 50/60Hz)	415	415	415	415	415
Material of Blades	SKD11	SKD11	SKD11	SKD11	SKD11
Quantity of Fixed Blades	2	2	2	2	2
Quantity of Rotating Blades	3×2	3×3	3×4	3	3
Cutting Chamber (mm)	230×240	230×360	230×480	300×480	300×600
Max. Output (kg/hr)	90	120	150	185	220
Noise Level dB(A)	105~110	105~110	105~110	105~110	105~110
Screen (mm)	✓(Φ8)	✓(Φ8)	✓(Φ8)	✓(Φ8)	✓(Φ8)
Dimension					
H (mm)	1390	1390	1390	1430	1430
H1 (mm)	1320	1320	1320	1330	1330
W (mm)	590	710	830	830	950
W1 (mm)	240	360	480	480	600
D (mm)	1130	1130	1130	1200	1200
D1 (mm)	890	890	890	1000	1000
Weight (kg)	320	380	450	500	530

Notes: 1) " ✓ " stands for standard.

2) SKD11 is steel grade of Japanese JIS standard.

3) Max. capacity of the machine is subject to diameter of screen mesh and composition of the material.

4) Noise level varies with different materials and motor types.

5) To avoid plastic from sticking to the blades, all materials should be crushed at normal temperature.

6) Power supply: 3Φ, 400VAC, 50Hz.

## 1.4 Safety Regulations

Follow the instructions in this manual to avoid personal injury and damage to machine components.

The following safety measures shall be followed when operating the granulator.

### 1.4.1 Safety signs and labels



Electrical installation must only be done by a competent electrician!



Before the granulator is opened for servicing and maintenance, always disconnect the power with both the main switch and the control switch on the granulator.



Never put any part of your body through the granulator openings, unless both the main switch and the control switch on the granulator are in "Off" position.



High voltage! Danger!

This sign is attached on the control box and the wiring box.



Be careful with the rotating knives, they are very sharp and can cause personal injury!



If the rotor must be turned manually-do this with great care!



The granulator should not be able to start before the hopper and screen bracket are properly closed.



Attention please!

Ear protection is used during granulating of plastic materials.



Never remove protective sponge or quick coupling clips adjacent to the outlet of storage bin.



Make sure the power has been cut off before opening the feed box.



Air inlet dust clean.



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

- 1) SG-23E/30E series of granulators are packed in 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  $-25^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$  for long distance transportation and for a short distance, it can be transported with temperature under  $+70^{\circ}\text{C}$ .

### Storage

- 1) SG-23E/30E series should be stored indoors with temperature kept from  $5^{\circ}\text{C}$  to  $40^{\circ}\text{C}$  and humidity below 80%.
- 2) Disconnect all power supply and turn off main switch and exigency stop switch
- 3) Keep the whole machine, especially the electrical components away from water to avoid potential troubles caused by the water.

- 4) Use plastic film to cover the machine tightly to prevent the machine from dust and rains.

### Working environment

The machine should be operated:

- 1) Indoors in a dry environment with max. temperature +45°C 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 electric 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 over 3000m.
- 5) At least 1m surrounding space is requested when this equipment is running. Keep this equipment away from flammable sources at least two meters.
- 6) In the work area of vibration and strong magnetic force

### 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<sub>2</sub> dry powder fire extinguisher should be applied.



Flammable materials or materials which are contaminated by flammable substances/liquid may not be processed in the granulator. Serious risk of fire or explosion may cause personnel injury.



It is very important to tighten the screw as required torque.



When process item is longer than feed port, please cut long items into half until the length is shorter before processing.



Please don't put materials into the granulator if they are thinner than 2 mm and are soft and flexible, like rubber.

## 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:

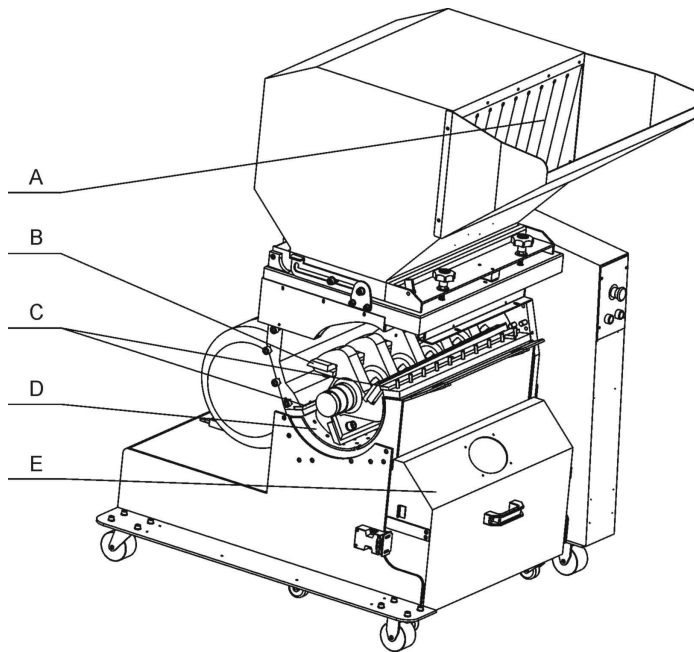
1. Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
2. Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible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

### 2.1 General Description

SG-23E/30E granulator is designed for grinding plastic waste to granulate for recycling. The plastic waste should be free from metal parts and contamination before granulating. Mount magnet at the feed port to prevent metal scraps from getting into cutting chamber and brings damage to the blades. The granulator is controlled by start/stop and emergency stop button on control panel.

#### 2.1.1 Working Principle



Parts name:

A. Feed port B. Rotary blades C. Fixed blades D. Screen E. Storage bin

Picture 2-1: Working Principle

The plastic waste is fed via feed port (A) and falls down into the cutting chamber, where rotary blades (B) cut the plastic waste against fixed blades (C) to granulate. A perforated screen (D) determines the size of the granulate. The screen is located in the lower section of the cutting chamber and can easily be changed to give the desired granulate size. The granulate passes the screen and falls down in

the storage bin (E). After this, the granulate is ready for re-use in the production machine, or to be transported to a container for later use.

## 2.2 Safety System

The granulator has knives which rotate at high speed, therefore equip-ped with a safety system to avoid personal injury. The safety system must not be changed or modified in any circumstances. If the safety sy-stem of granulator is changed or modified, the machine can be danger-ous to use, presenting a serious rick of personal injury.

Allmaintenance to the safety system of the granulator must be carried out by personnel with the necessary knowledge.

### 2.2.1 Emergency Stop

The granulator has an emergency stop button on the control panel and the emergency stop is activated by pressing the button. Resetting is effected by turning the button in the direction of arrow (anti-clockwise).



Picture 2-2: Emergency Stop

### 2.2.2 Safety Switch

The granulator has safety position switch with circuit breaker, if a secured position is changed or when a circuit breaker is undone, it will cut the current and the granulator stops.



Picture 2-3: Safety Switch



### 2.2.3 Star Knob

The star knobs which on the hopper and screen frame are very important components in the safety system of the granulator. When it is unscrewed, the blades have been stoped to avoid personal injuries.



Picture 2-4: Star Knob

***NOTE: The length of the screw must never be changed. The screw can not be moved.***

Before starting the star knobs on the hopper and screen frame must be fully tightened to stop. The storage bin should be installed and door shut and locked.

## 2.3 Electrical Components Instruction

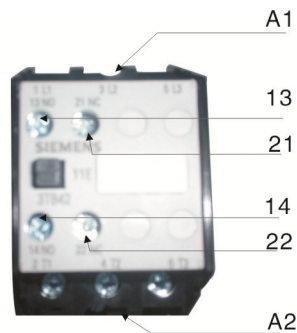
### 2.3.1 AC Contactor

Mainly used for remote turn on and break the circuit

A1.A2: Winding of the contactor

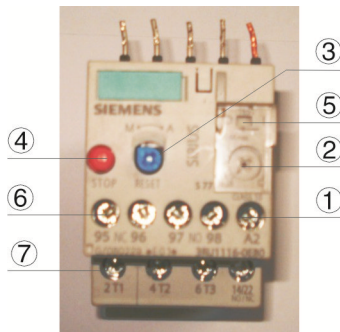
13.14: Frequently on contact point

21.22: Frequently off contact point



Picture 2-5: AC Contactor

### 2.3.2 Overheat Relay



Picture 2-6: Overheat Relay

- 1) Terminal for contact coil A2.
- 2) Setting current adjusting scale.
- 3) Reset (blue).  
H: manual reset  
A: automatic reset
- 4) Stop.
- 5) ON / OFF indication and TEST function.

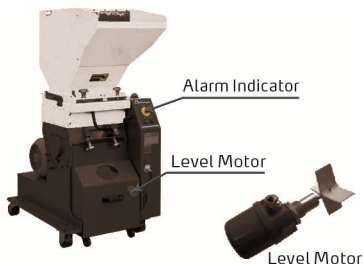
6) Auxiliary contact terminals shown in 95.96.97.98. NC and NO contacts are shown in position 95.96. and 97.98. respectively.

7) Main circuit connection No. must be corresponding with terminal Number of contactor.

At delivery, the overload relay is set for manual reset. (the reset button pointing to H). Manually reset the relay at the tripping of the switch. When motor overload occurs, stop the machine, then check and solve the problem. After that open the door of control box, press down the reset button of overload relay (if you can not press down the reset button, wait for one minute.)

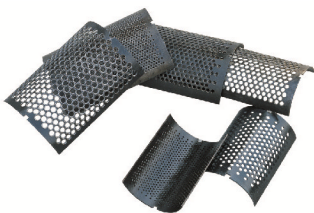
## 2.4 Options

### 2.4.1 Full-receiver Alarm Device



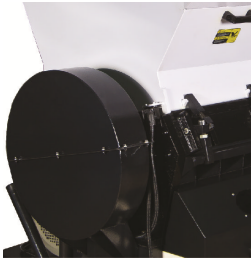
Full-receive alarm device can help to realize unmanned operation and no materials will be wasted. Whenever the regrind level reaches the motor position, the machine will be forced to stop and be cut off via it is sensor, thus stop the granulator and warn the user by sounding an alarm. Add “FAD” at the model behind.

### 2.4.2 Special Screen



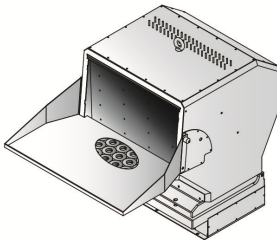
Optional screen mesh sizes includes  $\Phi 4$ ,  $\Phi 6$ ,  $\Phi 10$ ,  $\Phi 12$  (mm) which are applicable to SG-23E/30E series and  $\Phi 8$ ,  $\Phi 12$ ,  $\Phi 17$ ,  $\Phi 25$  (mm) which applicable to SG-36E series. All can be selected as per customer's requirement. Add “SS” at the model behind.

### 2.4.3 Flywheel



Increase inertia, thereby increasing the cutting ability. At the same time can result in a more balanced force and longer service life. It is an option for SG-36E series. Add “FW” at the model behind.

### 2.4.4 Feed Hopper with Magnet



Feed hopper with magnet is used to take out metal craps and impurities in the material. Add “R” at the model behind.

### 3. Installation and Debugging



Read through this chapter before installation.



Install as following orders to avoid any accident!



Be careful! Not to be cut by the sharp blade.



Power connection must be done by the professional electrician to avoid electrical shock.



Caution!

Cutters should be laid level, prevent the cutters from self-rotating when do installation, don't let your hands be near to the cutters to avoid personal injury.



Notice!

Do not install the cutters by working together, because this could bring personal injury. Use a thick wood block to stop the rotating knives from turning.



Notice!

The blades are very sharp, so use protective gloves to avoid being cut.



Notice!

Please use new screws and gaskets when installing cutters.



The power connection of the granulator should be carried out by professional electrician so to avoid electrical shock!

### 3.1 Installation Notice

- 1) Make sure voltage and frequency of the power source comply with those indicated on the manufacture's plate, which is attached to the machine.
- 2) Power cable and earth connections should conform with local regulations.
- 3) Use independent power cable and ON / OFF switch. The cable's dia. Should not smaller than those applied in the control box.
- 4) The power cable connection terminals should be tightened securely.
- 5) The machine requires a 3-phase 4-wire power source, connect the power lead (L1, L2, L3) to the live wires, and the earth (PE) to the ground.
- 6) Power supply requirements:  
 Main power voltage: +/- 5%  
 Main power frequency: +/- 2%

Make at least 1 meter clearance around the machine to facilitate repair and maintenace.



Picture 3-1: Installation Space

Chart 3-1: Attached Form, Cutters and Other Fixing Screw Torque

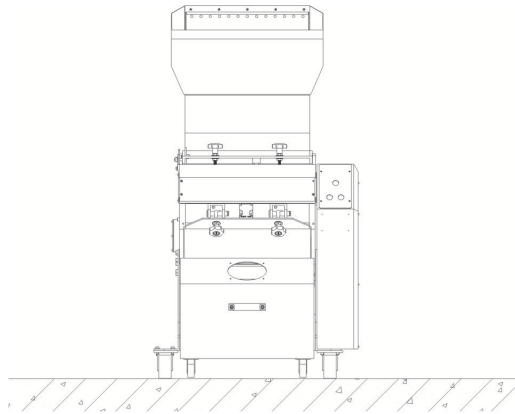
Thread size	M10	M12	M14	M16	M18	M20	M22	M24
Axial force(N)	23.8	34.5	47	65.5	78.5	103	129	149
Fixing torque (Nm)	50	86	135	215	290	420	570	730

## 3.2 Installation Place

***Make enough installation space to facilitate the repair and maintenance.***

***Check and make sure the installation ground is level, and there is enough intensity when it is running.***

Use spirit level to adjust the cutting chamber to the level position.



Picture 3-2: Installation Place

## 3.3 Installation of Blade Rest and Bearing

### 3.3.1 Installation of Blade Rest Shaft

Blade rest shaft is consisted of blade rest and its shaft. Before installation, please clean up the dust and impurities from the blade rest and its shaft, if there is any left, it will unable to install the blade rest on shaft or lead to scrap. After cleaning, put the blade rest on the hydraulic machine, and then put the shaft onto the pivot of blade rest and keep the shaft vertical. After finish those procedure, daub lubricating oil on the shaft to facilitate its pushing into.



Picture 3-3: Installation of Blade Rest Shaft

### 3.3.2 Installation of the Flap

Hold the blade rest vertically and put the shaft sleeve on the blade rest shaft in a balanced way. Then place another proper bolt sleeve on top and press it into with a hydraulic machine or use a copper stick to softly knock it into. After the shaft sleeve has been installed, then put the flap onto it. The three countersunk holes should be aligned to the three M8 holes on blade rest and fill in screw fixation glue at the holes, then mount the three M8 ×16 inner hexagonal screws and tight them up.



Picture 3-4: Installation of the Flap

### 3.3.3 Installation of Bearing Block and Bearing

Clean up scrap iron and impurities from the holes within the bearing block, then turn the reverse side up and knock the oil seal softly into the bearing block and daub some lubricating grease. After finishing that, lay the bearing into the bearing block smoothly with a hydraulic machine or use a copper stick to softly knock it into.

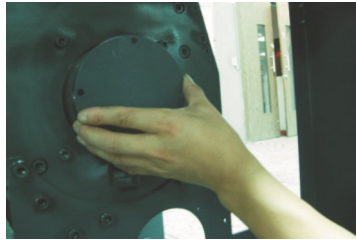


Picture 3-5: Installation of Bearing Block and Bearing



### 3.3.4 Installation of bearing cover

Use air gun to clean up the roller of the bearing and fill sufficient lubricating grease, then install and lock it up again.



Picture 3-6: Installation of Bearing Cover

## 3.4 Installation of the Bearing, Belt Pulley and Belt

- 1) Install the block washer on both left and right terminal of the blade rest.
- 2) Daub lubrication on the bearing and the base of it, then put the bearing in the base.
- 3) Use the hydraulic machine to press the bearing to the mounting position.
- 4) After fasten the cutting chamber and the base of it, put the blade rest in it from left to right, use screw to lock it tightly.
- 5) Lock the cover of the bearing, put the bolt into the groove.
- 6) Install the big belt pulley to the shaft, mount the locking washer and lock the locking washer tightly after adjust the big belt pulley with a dial gauge.
- 7) Install the motor and adjusting board on the fixed board of the motor. (Do not screw it tightly).
- 8) Install the belt, use spirit level to adjust the big and small belt pulley.



Picture 3-7: Installation of the Bearing, Belt Pulley and Belt

### 3.5 Installation of Screen, Screen Frame and Storage Bin.

- 1) Put the screen into the screen frame.
- 2) Lift up the screen frame and put its back pothook on the fixation plate that is at both ends of the bearing base .
- 3) Lock the star knob after sustain the screen frame to match the bearing base.
- 4) Then insert the storage bin into the groove at the both ends of the bearing base.
- 5) Insert the safety switch.

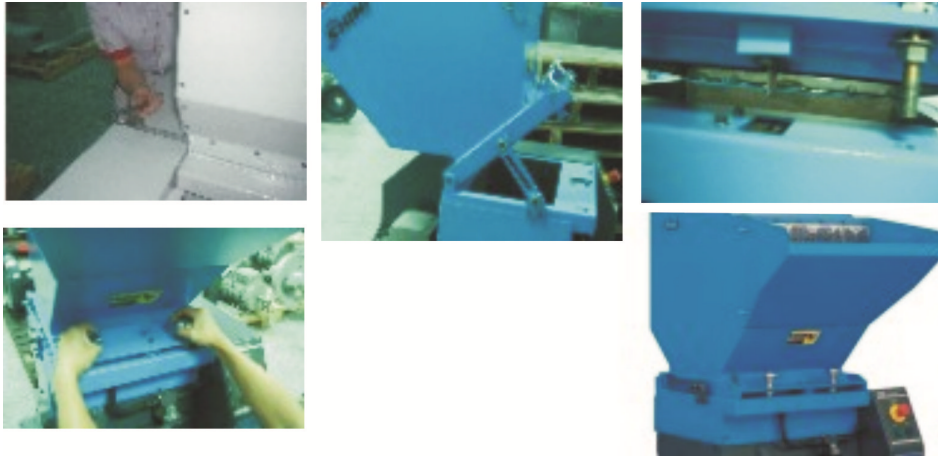


Picture 3-8: Installation of Screen, Screen Frame and Storage Bin.

### 3.6 Installation of the Feed Box, Feed Port and Material Stopper

- 1) Attach a sponge dustproof on the joint surface of the feed box base.
- 2) Lift up the feed box to let its base align properly to the cutting chamber, insert iron stick to fixup it.

- 3) Fix the sustain frame between the base of the feed box and the cutting chamber, open the adjusting sustain frame to fix the screw.
- 4) Arrange the flashboard of the feed box properly to the groove and close it, use star knob to lock the feed box and the cutting chamber.
- 5) Mount the material stopper and feed port, then lock them up.



Picture 3-9: Installation of the Feed Box, Feed Port and Material Stopper

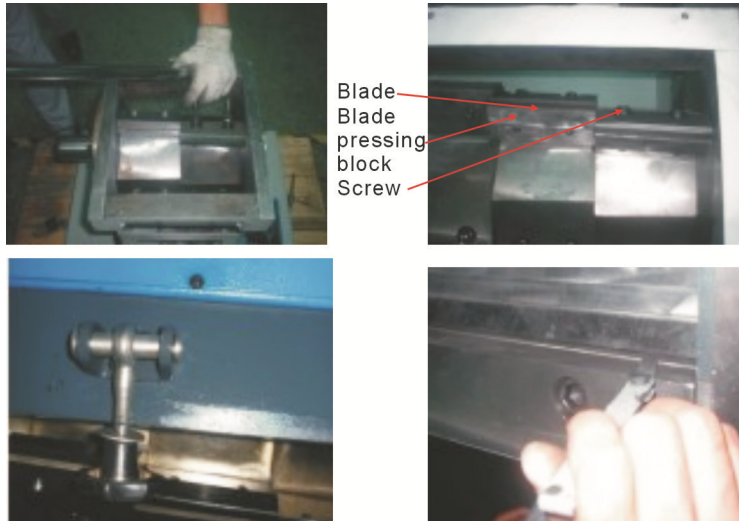
### 3.7 Installation of the Blade



#### Notice!

The blades are very sharp, so use protective gloves at the installation to avoid being cut.

- 1) Clean the sustain block of the fixed blade and rotating blade firstly.
- 2) Put the rotating blade in the groove and press on the blade block, and then use screw to lock it.
- 3) Install the front and back press block on the front and back case block, obligate proper gap for inserting fixed blade.
- 4) Mount headless screw in the adjusting hole of the front and back fixed blade in order to move the fixed blade to adjust the gap.
- 5) Adjust the distance of fixed and rotating blades to about 0.20~0.30mm. (This distance should not be too small, or blades damage can be caused.)
- 6) After adjusted the distance, tightly lock the blades.



Picture 3-10: Installation of the Blade



Notice!

Requirements of the screws: hexagonal socket cap screw M10\*30mm, tensity 12.9, hardness HRC41.



Notice!

Fixed screws for the blades must all be tightened to avoid cutting and doing harm to machine.



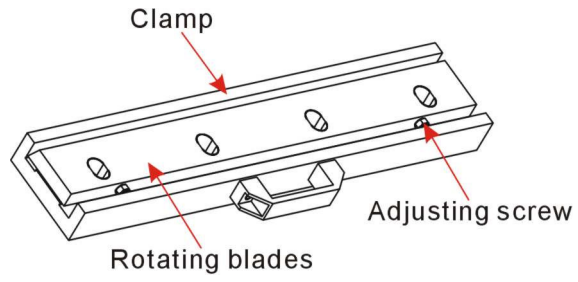
Notice!

The space between the fixed blade and the rotating blade cannot be too narrow to avoid damaging the cutting tool.

### 3.8 Blades Installation Adjusting (SG-30E)

All the cutters, including rotating blades and fixed knives, can be adjusted within clamp outside the machine.

Put all the cutters including rotating knives and fixed knives into clamp, adjusting its adjusting screw until the screw reach the clamp.



Picture 3-11: Blades Installation Adjusting (SG-30E)

## 4. Operation Guide



Wear earplugs during operating to avoid personal injury!



Wear gloves during operating to avoid personal injury!



Wear goggles during operating to avoid personal injury!



Because the blades and rotor may be loosen, check the following items before operating:

- 1) If the blades has any damage;
- 2) If the surface of the rotor is loosen;
- 3) Push or pull the rotor and blades to see if there is any loose connection.

If any of the above situations is found, please contact local representative or SHINI company for help.

### 4.1 Prestart Check

1. The unpainted parts of the machine are protected with oil prior to delivery and transport. Clean the granulator from rust protection agent before it is used.
  - a) Use dishcloth to clean firstly.
  - b) Then use dishcloth with water to clean.
2. Check the distance of the knife (0.20~0.30mm) and tightening torque (Twisting force 90Nm).

#### 4.1.1 Two Hours Sfter First Start

Check the knife distance again, including rotating blades and fixed blades. Check the screws on them to see if there is any loosen one.

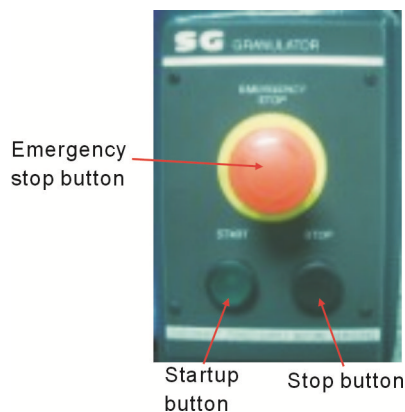
### 4.2 Power Connection

- 1) Connect the granulator to the power.
- 2) Switch on the main power and circuit breaker.
- 3) Check that the emergency stop is not activated.

- 4) Check that the star knobs on the hopper and screen frame locks are fully tightened.
- 5) Start the machine.
- 6) Check that the granulator motor rotates in the direction indicated by the arrow on the cutter pulley.
- 7) If any direction of rotation should be incorrect:
  - a) Stop.
  - b) Switch off the main power.
  - c) Change two income wires of the motor.
  - d) Restart and recheck.

### 4.3 Start / Stop of the Machine

SG23E / 30E series of granulator use the start and stop button located on the control panel for controlling.



Picture 4-1: Start / Stop of the Machine

***Note: Never stop the granulator before any material in the hopper or cutter chamber is completely granulated.***

***Residual material will clog the rotor in the granulator during restart. The motor will be overloaded and the overloading protection will trigger.***

## 4.4 Open the Feed Box



Turn off the power before opening the feed box and screen frame of the SG-23E/30E series of granulator.



Becareful! Since the blades are very sharp and can cause personal injuries.



Clean the inside surface of the feed box before closing it.

- 1) Check that the feed-in case is empty, and then start the machine.
- 2) Loosen the star knobs on the feed box.
- 3) Open the feed box backwardly.
- 4) Use supporting plate to hold the feed box and keep it from falling down.



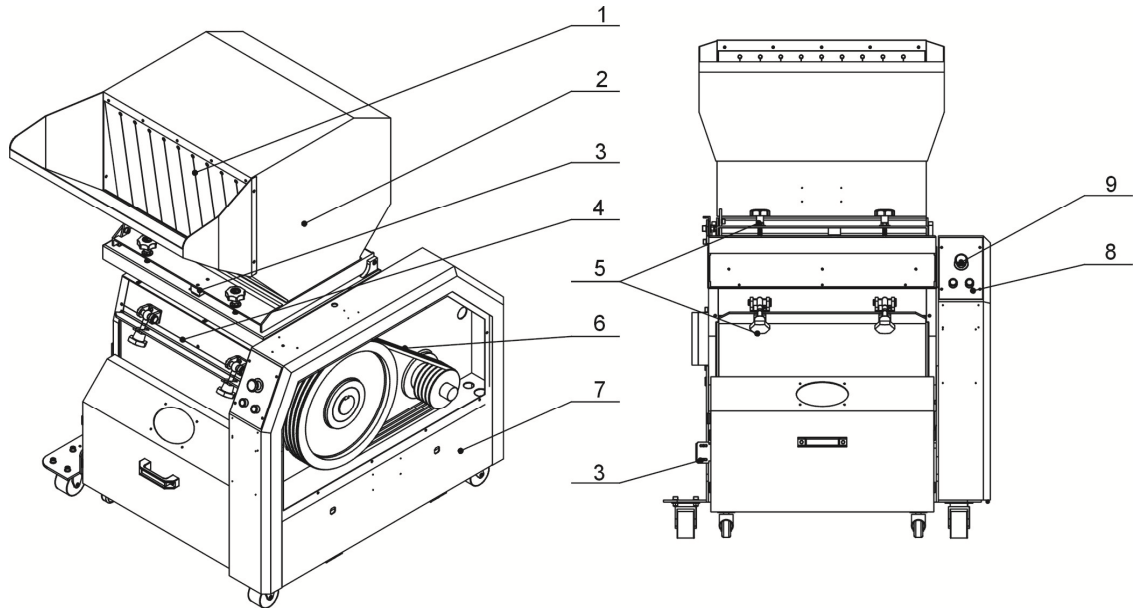
## 5. Trouble Shooting

### 5.1 Granulator Can Not Work

- 1) Check if the emergency stop has been reset or not. If not, rotate the button anti-clockwise to reset it.
- 2) Check if the safety switch between feed box and storage box is completely closed. If not, machine can not be started.
- 3) Checking overload protector of the motor.
- 4) The overload protector in the electrical control box will work if the motor overloads. Test white key (A) turn left, press the “Reset” button (B) to reset it. Before it starts again, check whether there is any powder left in the granulator.
- 5) Check the overload protector of the feeding blower's motor.
- 6) If the feeding blower does not run, the granulator can run neither. Check the motor protector in the electric control box. If the protector is closed, the switch will be at “0” position, reset it to “1” position. Check if there’s no leftover, then re-start the machine. Test the white key(A) turn left, press” Reset” key (B) to reset it.
- 7) Check the clearance between the blades
- 8) The stop will happen or the motor overload protector will work if the blade is very blunt or the space between blades is not correct. Protector will be tripped if motor is overload. Blades should be checked, replaced or adjusted between the blades.
- 9) The contactor is burnt down or the control circuit is break off.



## 6. Maintenance and Repair



1. Check the material baffle plate before starting up. Period: daily
2. Check whether there is any metal object in the cutting chamber before starting up .Period: daily
3. Check whether the safety switch works well. Period: daily
4. Check whether the fixed blades and fixed screws are loose. Period: weekly
5. Check whether screws of the feeding box and screen bracket on the cutting chamber are locked tight. Period: weekly
6. Check the belt tension. Period: monthly
7. Check whether the joints of electrical components inside the control box are loose. Period: monthly
8. Check whether the stop/start button works well. Period: daily
9. Check whether the emergency stop button works well. Period: daily

### 6.1 Repair

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

### 6.1.1 Changing the Blade



Be careful when holding the blades, they are sharp and can cause personal injury. Use protective gloves!



Every time the blades are changed, the blade fastening hexagon socket cap screws (specification=M10×30mm, strength 12.9 and hardness HRC41) must be replaced by new ones.



Notice!

Do not install the cutters by working together, because this could bring personal injury. Use a thick wood block to stop the rotating knives from turning.

- 1) Open the door of the chamber to take out the screen and then open the feed box.
- 2) Unscrew the screw on the pressing block of the fixed blade, Then take the blade out.
- 3) Unscrew the pressing block of the rotating blade, then take the blade out.
- 4) After take out the blade, clean the groove of the blade.
- 5) Install the new blade.
- 6) Check the blade. Turn around the blade rest till all the blades could rotate freely.



Picture 6-1: Changing the Blade

## 6.2 Transmission

### 6.2.1 Daily Maintenance of V-belt

The granulator is driven by four V-belts, made in China: A-1600(SG-23E); A-1676 model (SG-30E) .

- 1) Check the V-belt.

After 20 to 30 hours operation under full load, check V-belt tension and its working condition. Check if the belt is wearing out every month.

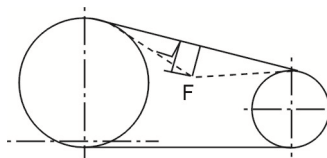
2) Check V-belt tension every 6 months.

Take down the top cover on the right side of control box, pull around the belt to see if there is any damage.

**Note: Do not put your hands between the belt and wheel, or hands crushing may occur. Check and adjust belt tension if necessary.**

A) As for motor rated power at 7.5kw, if a strength of 20N is applied on the belt, the belt should be pressed down no longer than 5mm.

b) As for motor rated power at 11kw, if a strength of 27N is applied on the belt, the belt should be pressed down no longer than 5mm.



For motor of 7.5KW or above  
L=5mm F=20N  
For motor of 11KW or above  
L=5mm F=27N

Picture 6-2: Daily Maintenance of V-belt

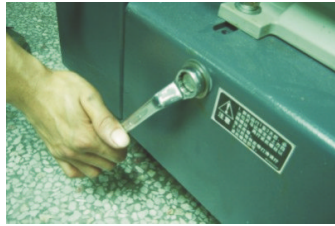
### 6.2.2 Adjust the V-belt

- 1) Take down the side plate on the control box that is located on the right side of the machine.
- 2) Take out the storage bin; loose the position adjusting screws of the motor.



Picture 6-3: Adjust the V-belt 1

- 3) The tension of the belt could be altered by adjusting the distance between motor and driving wheel. Tighten the screws after you finished the adjustment.



Picture 6-4: Adjust the V-belt 2

- 4) Lockup the screw as figure 6.2.2 shows
- 5) Re-check belt tension after 20 to 30 hours operation under full load.

## 6.3 Lubrication

### 6.3.1 Lubricating Oils

Xin Chang Long: FX-00

FX-000

Bp: BP Grease LGEP 2

ESSO: Beacon Ep2, Beacon EP2

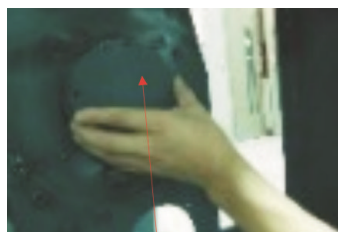
Mobil: Mobilux EP2

Shell: Shell Alvania EP2

Texaco: Multifak Ep2, Novotex Grease EP2

### 6.3.2 Lubricating Method

Open the bearing cover to fill in the lubricating oil.



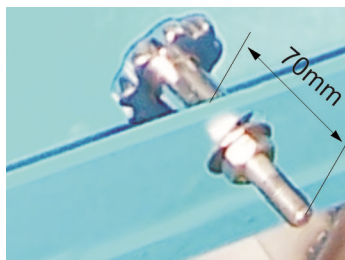
Bearing cover

Picture 6-5: Lubricating Method

## 6.4 Maintenance

### 6.4.1 Daily Maintenance

- 1) Check if the plastic shutter at the intake of feeding hopper is broken or not. If there is any damage, replace it. Or damaged parts may fall into cutting chamber and cause pollution. It also makes the material easy to fall out.
- 2) Check if the emergency stop is working properly. Stop the machine by using this button to check its function. Turn round as the arrow shows on this button to reset.
- 3) Check the star knob, the safety screw is a part of the granulator's safety system and its length is predesigned. The granulator will stop when that screw is loosen so to protect the machine. Its exact length is 70mm. New one replacement is a must when it is damaged.



Picture 6-6: Star Screw

### 6.4.2 Weekly Checking

- 1) Check if the electric wires are worn out or damaged. Replace the broken wires.
- 2) Check the function of safety switch.
- 3) Check the safety switch of feed box and storage bin.

### 6.4.3 Monthly Checking

- 1) Check if the V belt is damaged or not.
- 2) Check belt tension every 6 months, see details at chapter 6.2 "Transmission".

## 6.5 Cleaning



Note!

Make sure the main power is turned off before cleaning.



When you open the feeding hopper, be careful not to touch the blades. Sharp blades may cause personal injuries.

- 1) Check if the feed box is empty or not before stop the machine.
- 2) Clean the out surface of feed box.
- 3) Clean the feed port.
- 4) Push the feed box backwardly to open.
- 5) Pull out the plastic shutter and clean both sides of it.



Note!

When using hands to turn around the blade rest, be careful not to be hurt by sharp blades.

- 6) Clean storage bin and screen frame.
- 7) Clean both inside and outside of cutting chamber.
- 8) Clean the grinded material that is stuck to the bearing base by using compressed air to blow into the material cleaning hole on cutting chamber's left and right side plates and to rotate the blade rest in the mean time. One time a day is highly suggested.

***Note: A protective cover should be used to cover the safety switch to keep away impurities.***

## 6.6 Maintenance Schedule

### 6.6.1 About the Machine

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

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

### 6.6.2 Check After Installation

- Check the gap between fixed blade and rotating blade. (0.2~0.3mm).
- Check the rotating balance of the belt wheel.

#### Electrical Installation

- Voltage: \_\_\_\_\_ V \_\_\_\_\_ Hz
- Specs of the fuse: 1 Phase \_\_\_\_\_ A 3 Phase \_\_\_\_\_ A
- Check phase sequence of the power supply.

### 6.6.3 Daily Check

- Check emergency stop button.
- Check start / stop button.
- Check material check plate (strip) is perfect or not.
- Check whether emergency stop and safety switch works normally.
- Clean screen and feeding hooper.
- Check whether start, stop and power switches are normal.

### 6.6.4 Weekly Check

- Check all the electrical cables.
- Check if there are loose connections of electrical components.
- Check blade condition.
- Check whether set screws in fixed and rotate blades are under looseness.
- Check if there is abnormal noise, vibration and heat in reduction gear.
- Check the cracking window

### 6.6.5 Monthly Check

- Check the overload protection function of the motor.
- Check motor reversed running function.
- Check the tightness of the blades.
- Check whether clamp ring of pulley is fastened.
- Check belt tension.



### 6.6.6 Check Half-yearly or Every 1000 Running Hours

- Check the lubricate of the bearing, motor and the hopper rotating shaft
- Check both terminal plate
- Estimate for the using of the machine

### 6.6.7 3 year Checking

- PC board renewal.
- No fuse breaker renewal.