SG-24E Series

"Standard" Screenless Granulators

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Version: V4.1 (English)

SHINI®
plastics technologies

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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.

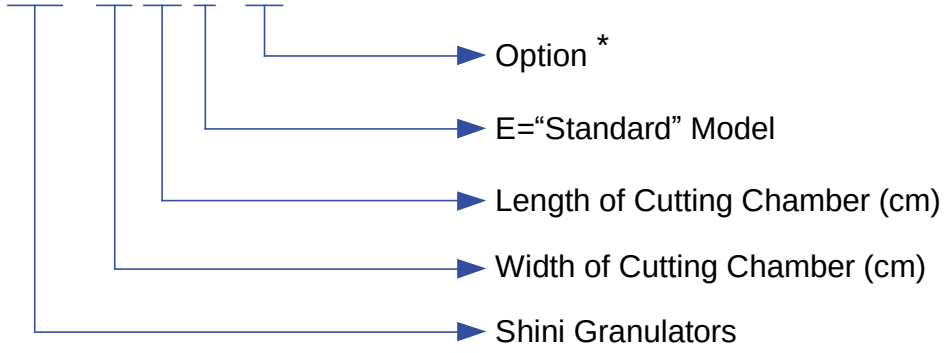
Forbidden to process flammable or toxic material!

SG-24E series "Standard" screenless granulators are suitable for instant recycling or granulating hard and thick materials. With European-type appearance and compact size, they feature low rotating speed, low abrasion and super soundproof. Unique cutting blades design ensures well-proportioned granules and minimal amount of dusts. Easy for material cleaning and safe to operate. The unique transmission design cuts the cost greatly.

Model: SG-2417E

1.1 Coding Principle

SG - xx xx E - xx



Note：*

VR=Loading by High Pressure Air BR=Loading by Bolwer
BC=Blower Conveying & Cyclone Dust Collector
DS=Dust Separator H=Higher Motor Power
R=For Stainless Steel Made Feed Port and Storage Tank

1.2 Feature

Standard configuration

1) Excellent gear motor features reliable performance, long service life and high torque.
2) Integral design of teeth cutters and staggered blades makes roughly grinding and fine grinding simultaneously to mix with new materials.
3) Even granule with little dust.
4) Unique transmission design makes it running stably with low noise level.
5) European type appearance, compact in size and easy to access for cleanig and maintenance.
6) Feeding hopper adopts visual window in welding way to make solid structure.
7) Easy motor installation and maintenance.

Accessory option

1) Stainless steel feeding hopper and storage bin are 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 6, which contains service instructions intended for service engineers. Other chapters contain instructions for the daily operator.

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

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

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1.3 Technical Specifications

1.3.1 Technical Specifications

Table 1-1: Technical Specifications

Model	SG-2417E	SG-2427E(H)	SG-2436E(H)
Motor Power (kW, 50/60Hz)	0.75 / 0.86	0.75 / 0.86 (1.5 / 1.75)	1.5 / 1.75 (2.2 / 2.55)
Rotor Speed (r.p.m, 50/60Hz)	24	24	24
Teeth-cutter Material	SKD-11	SKD-11	SKD-11
Staggered Blade Number	1	2	3
Teeth-cutter Number	2	3	4
Cutting Chamber Size (mm)	240×175	240×270	240×365
Maximum Granulating Capacity (kg/hr)	3.5	6(6.5)	8.5(9)
Noise Level dB(A)	65~73	65~73	67~75
30 Seconds Instant Recycling System	○	○	○
Regrind Conveyor (BC Type)	○	○	○
Dust Separator	○	○	○
Proportional Valve	○	○	○
Manual Storage Bin	○	○	○
Dimensions			
H (mm)	1265	1265	1265
H1 (mm)	950	950	950
W (mm)	450	550	650
W1 (mm)	290	390	485
D (mm)	425	425	425
D1 (mm)	450	450	450
Weight (kg)	160	200(205)	240(245)

Note: 1) "○"Stands for options.

2) Change into stainless steel made material inlet and storage tank. Add "R" at model behind.

3) Noise level varies according to different granules.

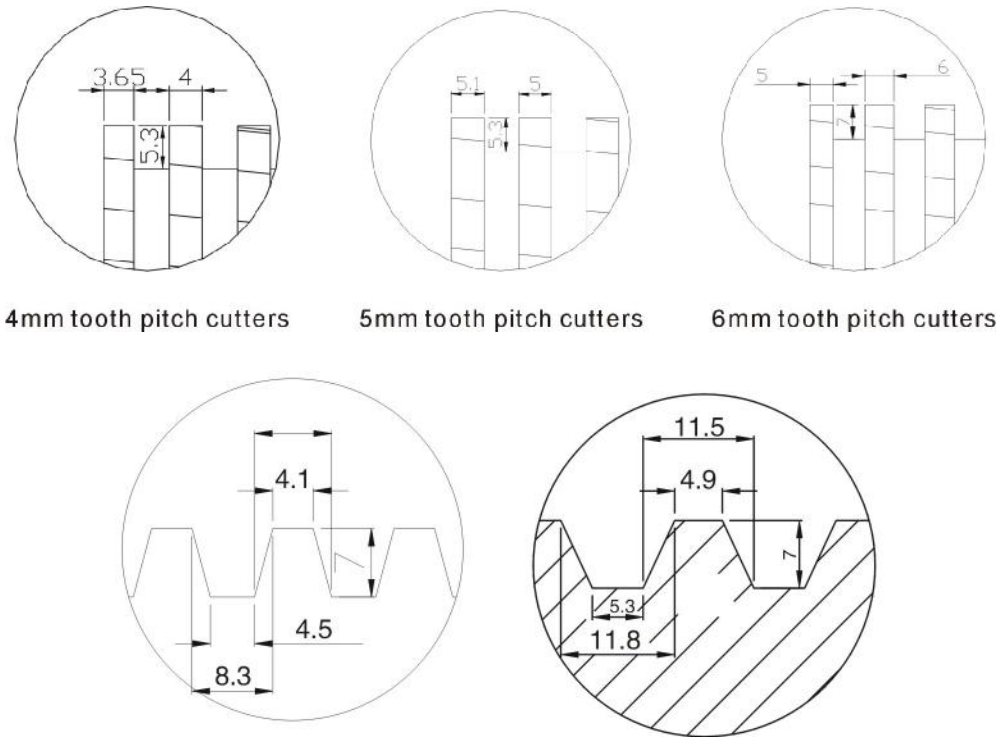
4) SKD11 is material code number of Japanese JIS standard.

5) 5 mm is a standard teeth - cutter width while 4 mm and 6 mm as options.

6) The test refers to the following conditions: 1 m around and 1.6 m above the machine.

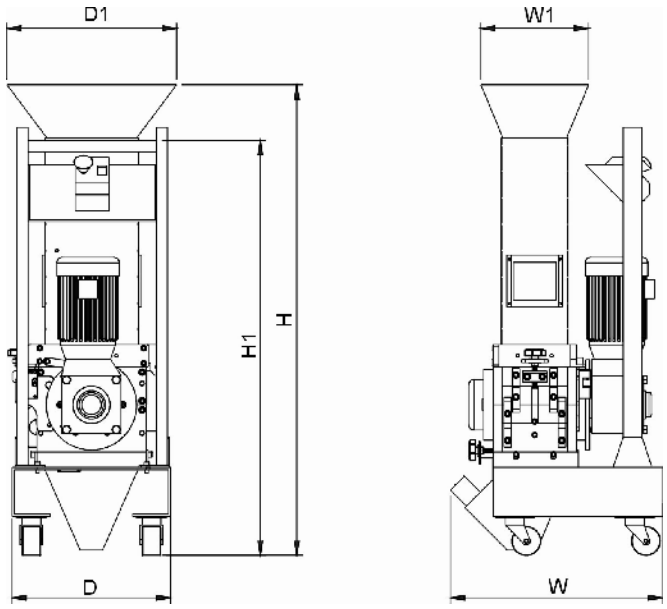
7) For avoiding plastic to adhibit the blade, all materials should be crushed at normal temperature.

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



Picture 1-1: Tooth pitch cutters

1.3.2 Dimensions



Picture 1-2: Dimensions

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.

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

 Attention!

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

When operate the granulator, please notice the following signs

	Hazard High voltage! May lead to casualty or other serious danger. Please cut off the power before repairing. Circuit diagram should only be changed by professionals. Grounding is necessary.
	Warning There is a pinch risk for this protective cover keep some distance away from that.
	Warning The cutter are very sharp, can cause injury take out or open protective cover is not allowed when it is running. Keep some distance away from the cutters.
	Notice Read the instruction manual carefully before operating. Before start, do the safety device test according to the instruction. It is not allowed to change the design of the machine unless it is approved from the manufacturer.

1.4.2 Transportation and Storage of the Machine

Transportation

1) SG-24E 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℃ to +55℃ for long distance transportation and for a short distance, it can be transported with temperature under +70℃.

Storage

1) SG-24E series 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 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℃ 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_2 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.

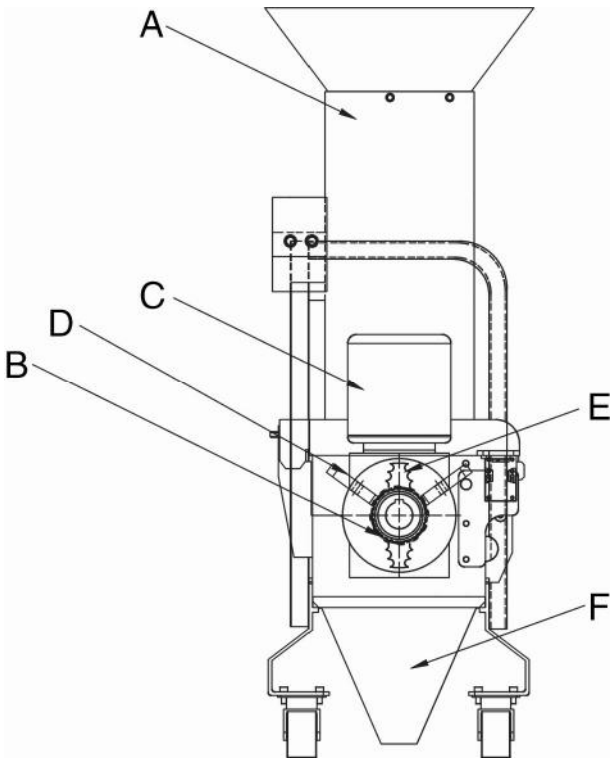
3. Any operational actions that are not authorized by Shini upon machine, including adding or replacing accessories, dismantling, delivering or repairing.
4. Employing consumables or oil media that are not appointed by Shini.

2. Structural Features and Working Principle

2.1 General Description

SG-24E machine-side granulators are mainly operated beside the moulding machine for small quantity of granulation, so don't put excessive material into it when granulating. The granulator is controlled by the main power switch, start button, stop button, safety switches and emergency stop button.

2.1.1 Working Principle



Parts name:

A. Feed box B. Teeth cutter C. Staggered blade D. Motor
E. Fixed blade F. Storage box

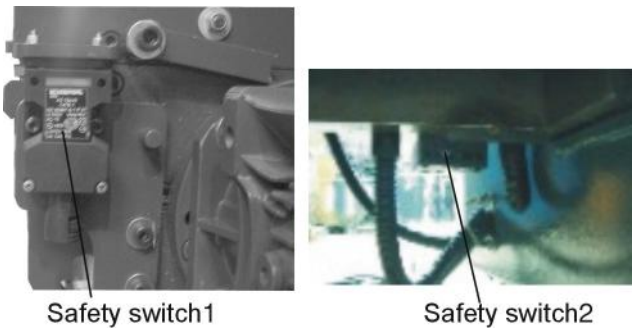
Picture 2-1: Working Principle

The material is fed in via feed box(A) and falls down into the cutting chamber, the block material is cutted by the staggered blades(C) and fixed blades(E), then the material is grinded into even granule by teeth blade(B) and fixed

blades (E). The granule directly fall into the collecting box(F), it does not need the screen. The cutting house is easy to open for cleaning and maintenance. The granule can be reused directly after processed or put into other place for storage.

2.2 Safety System

To avoid accidental bodily injury during granulator running, a set of safety system has been designed. High-speed rotating cutter is located in the granulator and subject to accident. So safety system has been set up to protect bodily safety. In any cases, the safety system cannot be changed at random. Otherwise the machine will be under dangerous condition and subject to accident happening. The maintenance and preservation of safety system shall be done by professional staff. In case the safety system of granulator is changed, our company will not perform our commitment. The replacement of all spare parts will be done by SHINI Company.



Picture 2-2: Safety System

2.2.1 Emergency Stop Switch

There is one red button on the control panel. Upon pushing it, the machine will stop running. Turn the button in the arrow direction as shown on the button, the button will reset (counter-clockwise).

Picture 2-3: Emergency Stop Switch

2.2.2 Safety Switch

On the granulator is equipped the safety position switch for the breaker. In case the position of storage box or feed box is changed or the breaker is loosened, the safety switch will cut off the power supply. There are two safety switches on the granulator: one is located between the feed box and the cutting chamber while the other one is on the inner wall of the cutting chamber, linked with the storage box.

Picture 2-4: Safety Switch

2.2.3 Lock

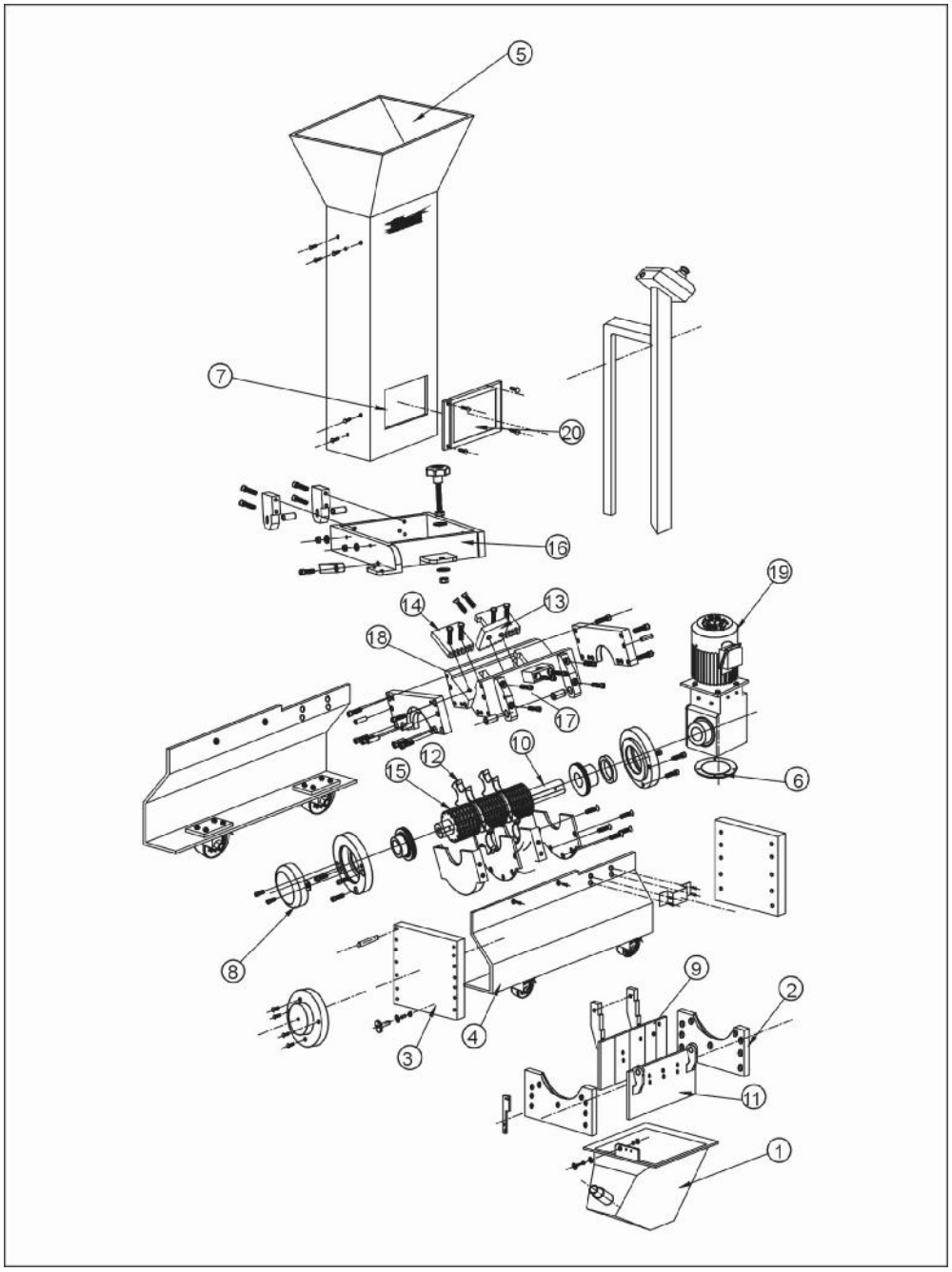
The lock of this machine is a long hexagonal screw, which can extend the time of door opening to avoid any injury. When opening the door, this hexagonal screw shall be loosened. The loosening will last a quite long period of time to enable the granulator fully stops, avoiding personal injury.

The following shall be paid attention to before switch on:

1) Check if the feed box has been tightened.
2) Close the feed box, and then tighten the hexagonal screw.
3) Check if the safety switch pin of storage box and the hexagonal screw have been tightened.

2.3 Assembly Drawing

2.3.1 Assembly Drawing (SG-2417E)



Note: Please refer to 2.3.2 material list about the parts code.

Picture 2-5: Assembly Drawing (SG-2417E)

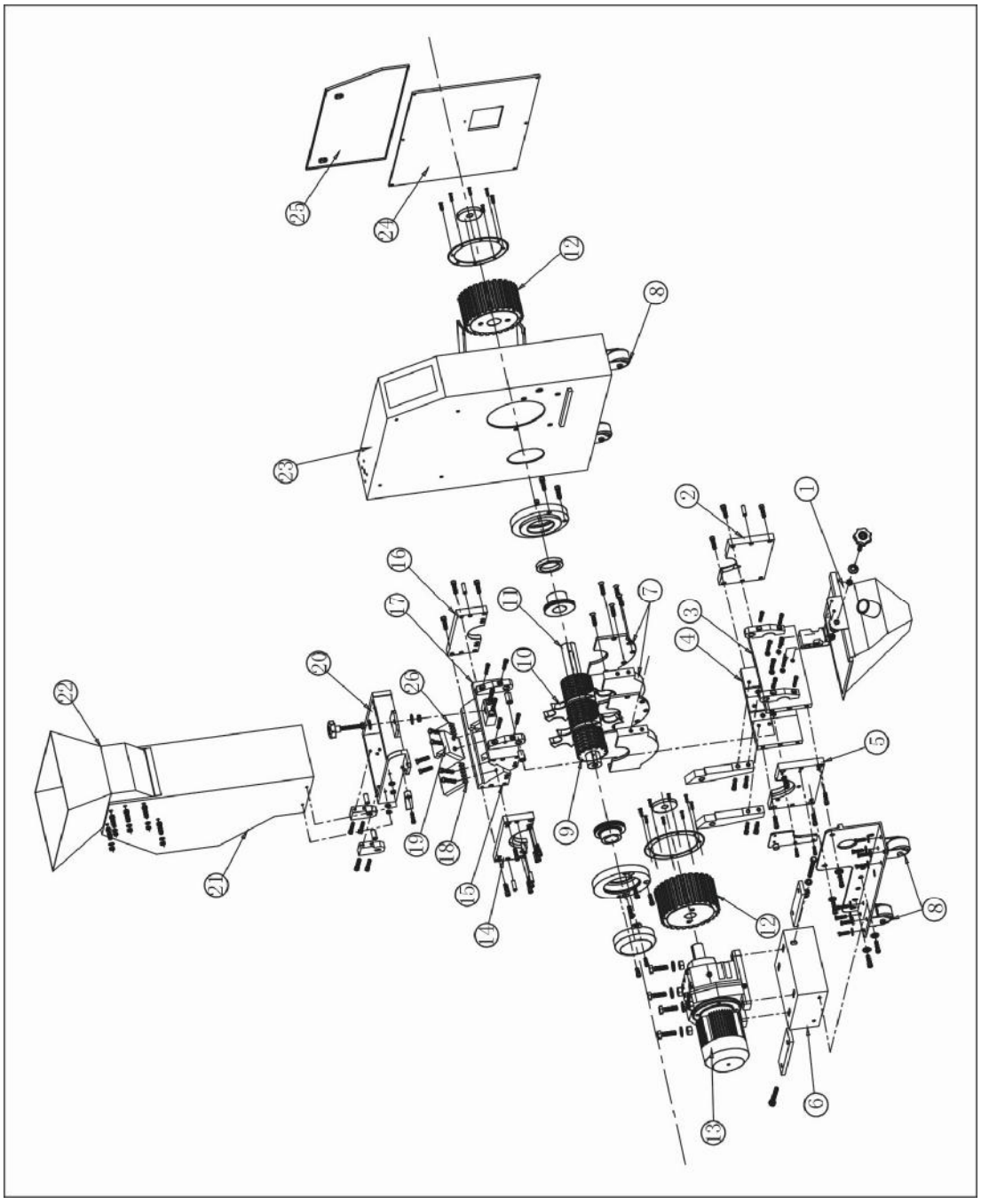
2.3.2 Parts List (SG-2417E)

Table 2-1: Parts List (SG-2417E)

No.	Name	Part No.	No.	Name	Part No.
1	Material-collection case	-	11	Lower and front box block	BH10241700110
2	Lower frame of the feeding box	-	12	Talon blade S	YW40245000000
3	The front and rear board of feeding box	BH10241700310 BH10241700410	13	Fixed front blade F1	YW40024500100
4	Side board of base seat	-	14	Fixed rear blade B	YW40024500300
5	Feeding entrance	-	15	Teeth blade R1	YW40245100000
6	Motor flange	-	16	Lower base of the feeding box	BH10241700210
7	Sight glass frame	-	17	Upper and front box block	BW30241700110
8	Main shaft terminal lid	-	18	Upper and rear box block	YW30241700000
9	Lower and rear box block	BH10241700010	19	Motor	YM10007500000
10	Main shaft	BH10241701110	20	Sight glass door plate	-

* 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.

2.3.3 Assembly Drawing (SG-2427E(H))



Note: Please refer to 2.3.4 material list about the parts code.

Picture 2-6: Assembly Drawing (SG-2427E(H))

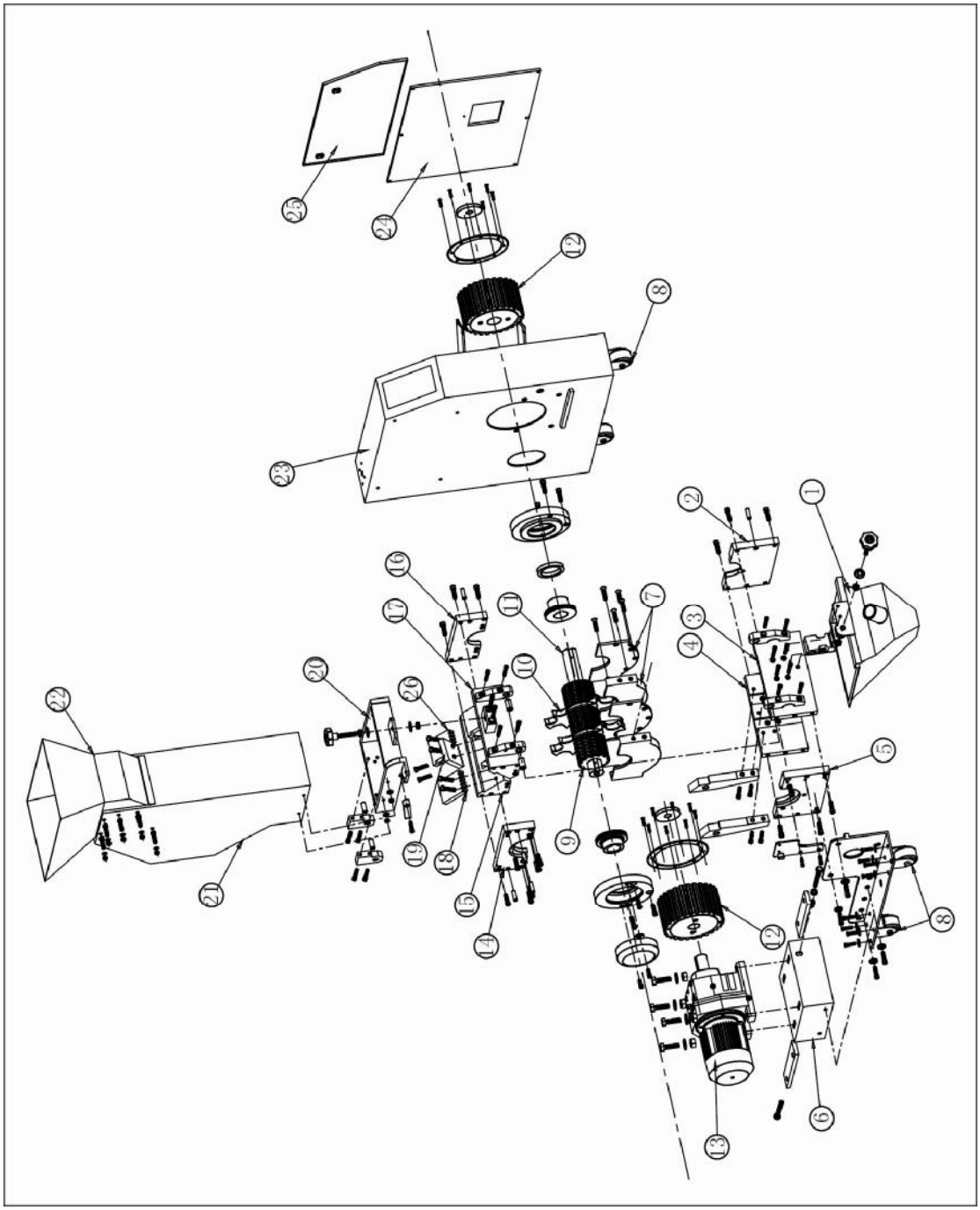
2.3.4 Parts List (SG-2427E(H))

Table 2-2: Parts list (SG-2427E(H))

No.	Name	Part No.	No.	Name	Part No.
1	Material-collection case	-	14	Upper box left end plate	BH10240000310
2	Lower box right end plate	BH10240000010	15	Upper box rear box block	BW30242700410
3	Lower box front box block	BH10242700610	16	Upper box right end plate	BH10240000210
4	Lower box rear box block	BH10242700110	17	Upper box front box block	BW30242700510
5	Lower box left end plate	BH10240000110	18	Fixed front blade F1	YW40024500100
6	Motor fixed block	-	19	Fixed rear blade B	YW40024500300
7	Medium board	BH10002400810	20	Lower base of the feeding box	BH10242700210
8	Fixed caster	YW03000300000	21	Feeding box	-
9	Teeth blade	YW40245100000	22	Feeding entrance	-
10	Talon blade	YW40245000000	23	Outer shell	-
11	Main shaft	BH10242701110	24	The upper side board of outer shell	-
12	Synchronization wheel	BW08243500010	25	The lower side board of outer shell	-
13	Motor	YM10105000100 YM10007500000	26	Fixed front blade F2	YW40024500200

* 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.

2.3.5 Assembly Drawing (SG-2436E(H))



Note: Please refer to 2.3.6 material list about the parts code.

Picture 2-7: Assembly Drawing (SG-2436E(H))

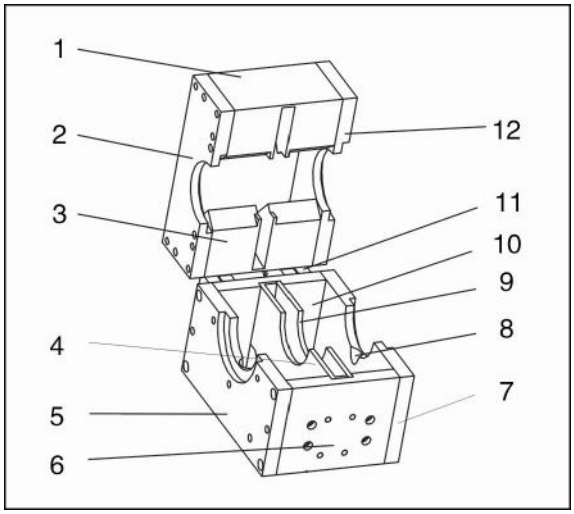
2.3.6 Parts List (SG-2436E(H))

Table 2-3: Parts List (SG-2436E(H))

No.	Name	Part No.	No.	Name	Part No.
1	Material-collection case	-	14	Upper box left end plate	BH10240000310
2	Lower box right end plate	BH10240000010	15	Upper box rear box block	BW30243600710
3	Lower box front box block	BH10243600610	16	Upper box right end plate	BH10240000210
4	Lower box rear box block	BH10243600010	17	Upper box front box block	YW30243600600
5	Lower box left end plate	BH10240000110	18	Fixed front blade F1	YW40024500100
6	Motor fixed block	-	19	Fixed rear blade B	YW40024500300
7	Medium board	BH10002400810	20	Lower base of the feeding box	BH10243600210
8	Fixed caster	YW03000300000	21	Feeding box	-
9	Teeth blade	YW40245100000	22	Feeding entrance	-
10	Talon blade	YW40245000000	23	Outer shell	-
11	Main shaft	BH10243601110	24	The upper side board of outer shell	-
12	Synchronization wheel	BW08244500010	25	The lower side board of outer shell	-
13	Motor	YM10020200000 YM10105000100	26	Fixed front blade F2	YW40024500200

* 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.

2.3.7 Cutting Chamber



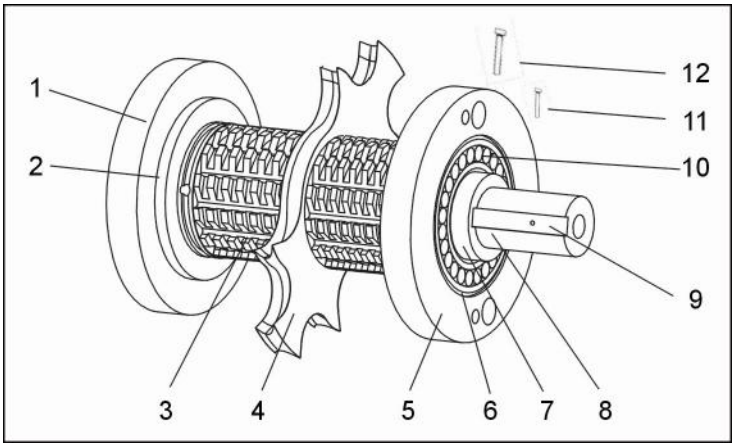
Picture 2-8: Cutting Chamber

2.3.8 Cutting Chamber Parts List

Table 2-4: Cutting Chamber Parts List

No.	Name	Quantity		
		SG-2417E	SG-2427E(H)	SG-2436E(H)
1	Front top housing block	1	1	1
2	Left top bearing holder	1	1	1
3	Back top housing block	1	1	1
4	Interlayer 1	1	2	3
5	Left bottom bearing holder	1	1	1
6	Front bottom housing block	1	1	1
7	Right bottom bearing holder	1	1	1
8	Air exhaust	1	1	1
9	Interlayer 2	1	2	3
10	Back bottom housing block	1	1	1
11	Locating block	1	1	1
12	Right top bearing holder	1	1	1

2.3.9 Blade Rest



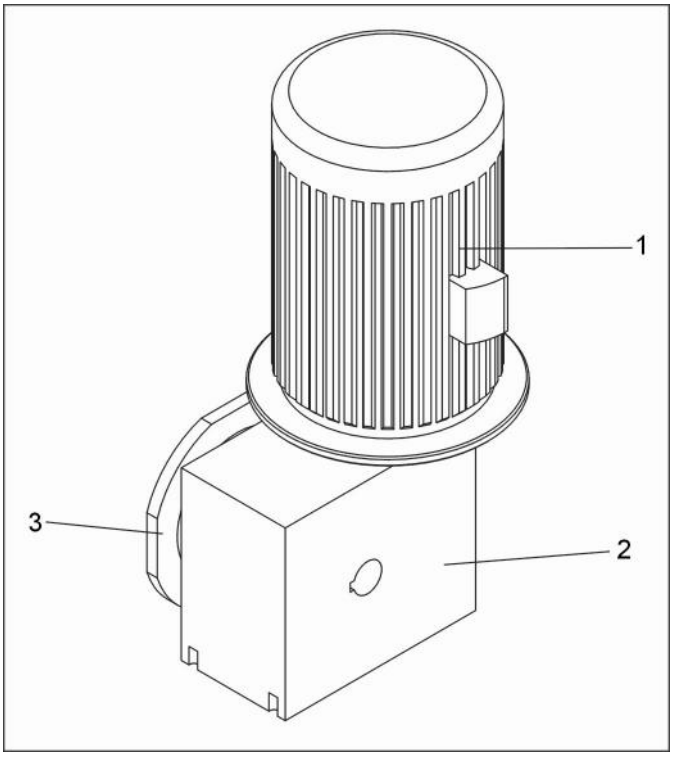
Picture 2-9: Blade Rest

2.3.9.1 Blade Rest Parts List

Table 2-5: Blade Rest Parts List

No.	Name	Quantity		
		SG-2417E	SG-2427E(H)	SG-2436E(H)
1	Left bearing block	1	1	1
2	Left bearing sleeve	1	1	1
3	Teeth cutter	2	3	4
4	Staggered blade	1	2	3
5	Right bearing block	1	1	1
6	Spring ring	2	2	2
7	Right bearing block	1	1	1
8	Shaft	1	1	1
9	Key	1	1	1
10	Bearing	2	2	2
11	Lockup screw	6	6	6
12	Fixing screw	6	6	6

2.3.10 Transmission Parts



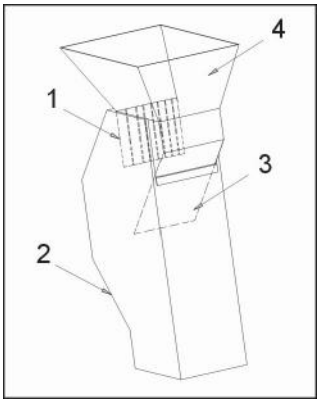
Picture 2-10: Transmission Parts

2.3.11 Transmission Parts List

Table 2-6: Transmission Parts List

No.	Name	Quantity		
		SG-2417E	SG-2427E(H)	SG-2436E(H)
1	Motor	1	1	1
2	Gear speed reducer	1	1	1
3	Flange	1	1	1

2.3.12 Feed Box, Sound Insulation Box and Check Plate



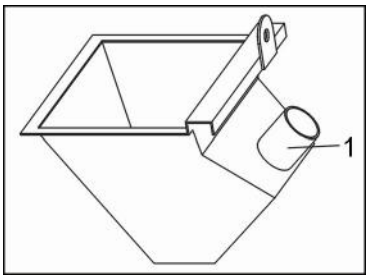
Picture 2-11: Feed Box, Sound Insulation Box and Check Plate

2.3.13 Feed Box, Sound Insulation Box and Check Plate Parts List

Table 2-7: Feed Box, Sound Insulation Box and Check Plate Parts List

No.	Name	Quantity		
		SG-2417E	SG-2427E(H)	SG-2436E(H)
1	Material shutter	1	1	1
2	Feed box	1	1	1
3	Material checking plate	1	1	1
4	Feed port	1	1	1

2.3.14 Storage Box



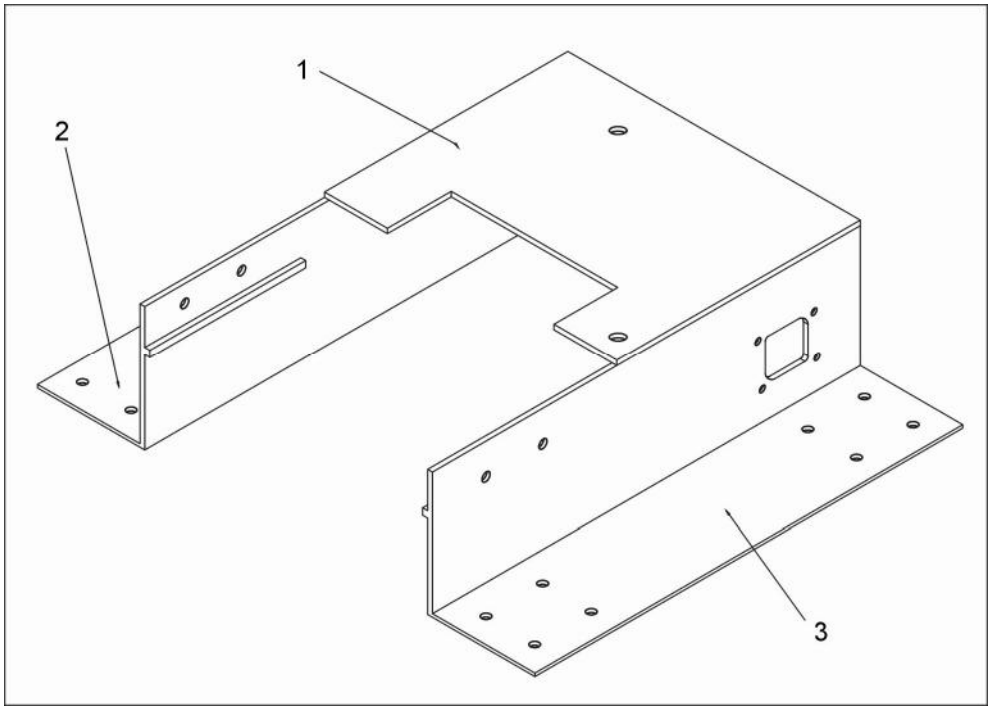
Picture 2-12: Storage Box

2.3.15 Storage Box Parts List

Table 2-8: Storage Box Parts List

No.	Name	Quantity		
		SG-2417E	SG-2427E(H)	SG-2436E(H)
1	Extraction pipe	2"	2"	2"

2.3.16 Main Body



Picture 2-13: Main Body

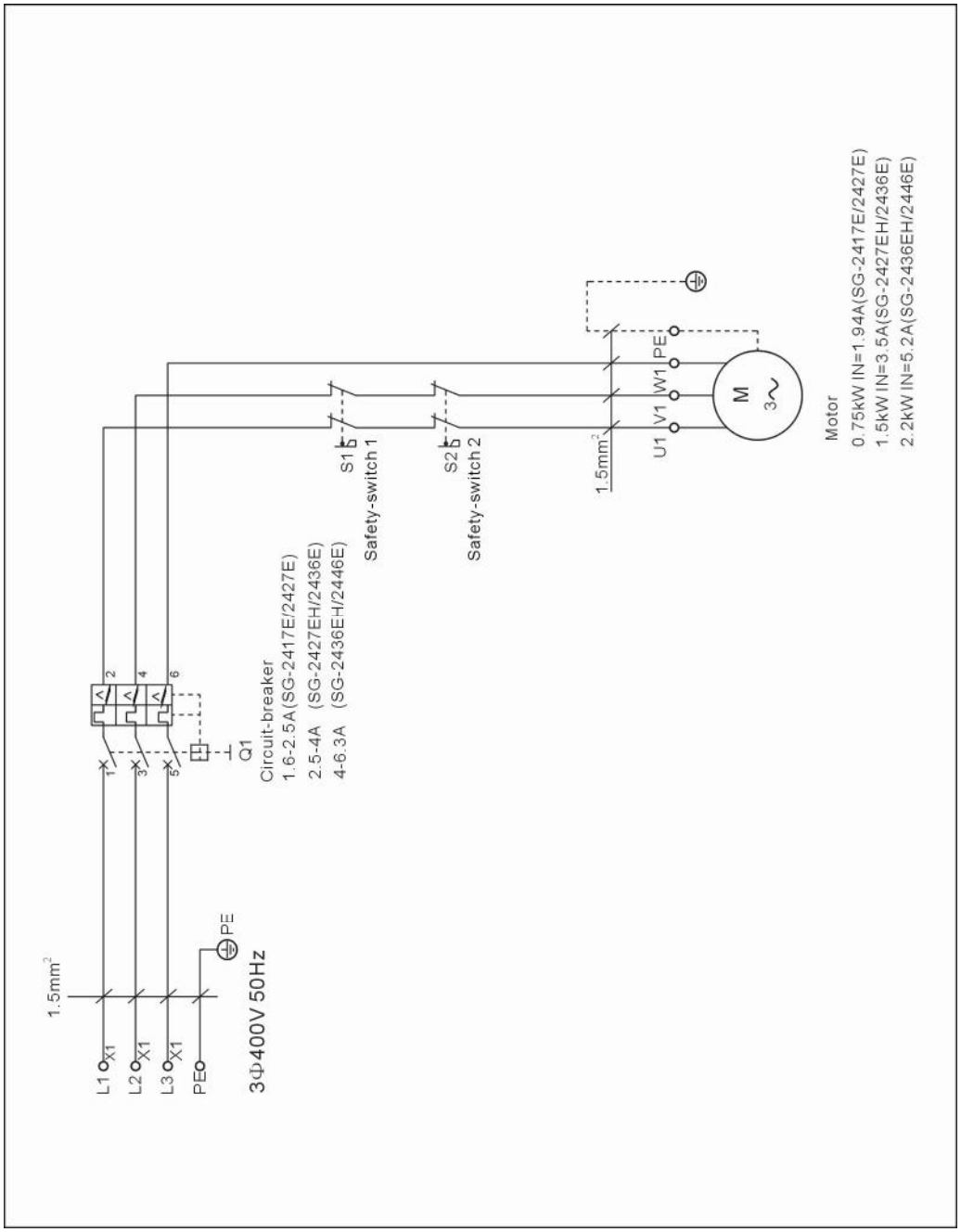
2.3.17 Main Body Parts List

Table 2-9: Main Body Parts List

No.	Name	Quantity		
		SG-2417E	SG-2427E(H)	SG-2436E(H)
1	Bottom base plate	1	1	1
2	Base left side plate	1	1	1
3	Base right side plate	1	1	1

2.4 Electrical Diagram

2.4.1 Main Circuit



Picture 2-14: Main Circuit

2.4.2 Electrical Components List

Table 2-10: Electrical Components List of SG-2417E/2427E

NO.	Symbol	Name	Specification	Part NO.
1	Q1	Circuit-breaker*	1.6~2.5A	-
2	-	Waterproof installation box	-	-
3	S1 S2	Safety-switch*	500V	YE16147600000
4	M	Motor	400V 50Hz	-

Table 2-11: Electrical Components List of SG-2427EH/2436E

NO.	Symbol	Name	Specification	Part NO.
1	Q1	Circuit-breaker*	2.5~4A	-
2	-	Waterproof installation box	-	-
3	S1 S2	Safety-switch*	500V	YE16147600000
4	M	Motor	400V 50Hz	-

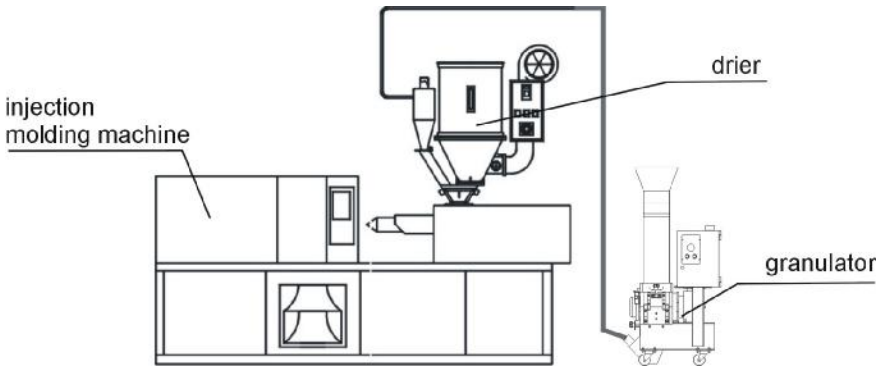
Table 2-12: Electrical Components List of SG-2436EH/2446E

NO.	Symbol	Name	Specification	Part NO.
1	Q1	Circuit-breaker*	4~6.3A	-
2	-	Waterproof installation box	-	-
3	S1 S2	Safety-switch*	500V	YE16147600000
4	M	Motor	400V 50Hz	-

* 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.

2.5 Optional Accessories

2.5.1 30-Second Instant Recycle System



Picture 2-15: 30 Second Instant Recycle System

2.5.1.1 Installation

Note:

Before operating the 30-second instant recycle system, please carefully read Chapter 3.

Connection of electric circuit for the 30-second instant recycle system shall be done by a professional electrician.

Prior to first start.

Before leaving the factory, the unpainted components have been coated with anti-rust oil. Clean the oil before using.

Connection

1) Install a separator (Φ250mm) under the cyclone.

2) Connect the conveying pipe 4" x 2.

Note!

If a hop-pocket is used to connect the separator, air ventilation shall be ensured.

2.5.1.2 Operation and Preservation

Switch-on and Switch-off

Switch-on and switch-off are controlled by the main power switch of the granulator.

2.5.1.3 Checks

Daily checks

Check no damage to the air pocket and the dust pocket; if damaged, replace them promptly.

Check no damage to the conveying pipe; if damaged, replace it promptly.

Check if the nozzle is properly connected and sealed.

Check if the dust collector is full; if so, immediately empty it.

Check the material collecting barrel is just under the dust separator; if not, please adjust it.

Check the material collecting barrel to see if it is full; if so, timely take out the plastic material upon dust removal.

Weekly check

Check any damage to electric line and its connection. In case of any damage, please connect it.

2.5.1.4 Cleaning

Note!

Once the plastic material is replaced or it runs for 300 hours, clean the system.

Before cleaning, pay attention to cut off the power supply.

1) First clean the inner wall of facilities.
2) Check and clean the dust separator.
3) Move the separator; apply the high pressure air to purge the inside grains.
4) Empty the material collecting funnel and clean its inside.
5) Vibrate the air pocket to enable the dust falls.
6) Install the dismantled components in reverse sequence.

2.5.2 Proportional Valve

Picture 2-16: Control box, Valve body

2.5.3 Manual Collective Storage Box

Picture 2-17: Manual Collective Storage Box

3. Installation and Debugging

 Read this chapter carefully 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 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.

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: +/- 10%
   Main power frequency: +/- 2%

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

Picture 3-1: Installation Space

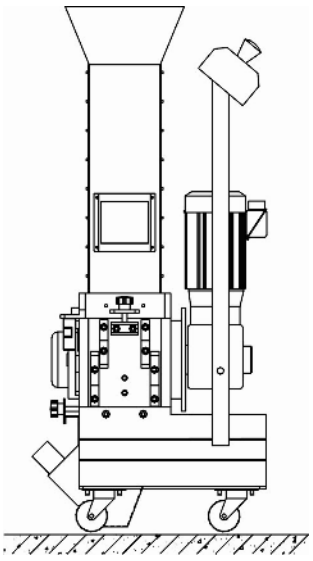
Table 3-1: Attached Form: Cutters and Other Fixing Screw Torque

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

Move the granulator to the proper place and fix its castors.

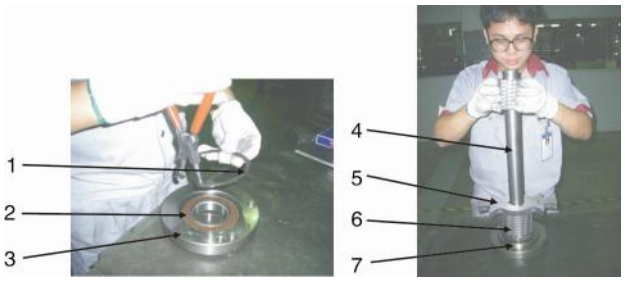
Check and make sure the installation ground is level, there is enough intensity when it is running.



Picture 3-2: Installation Place

3.3 Installation of Bearing and Blade Rest

1) Install the bearing 2 bearing washer 1 bearing sleeve 7 into the bearing base 3.
2) Insert the blade shaft 4 into the bearing sleeve vertically 7.Then sleeve the staggered blade 5 and the teeth blade 6 on the bearing spacing.



Picture 3-3: Installation of Bearing and Blade Rest 1

3) Install the right bearing base, bearing sleeve and bearing washer.
4) Put the blade rest 2 into the cutting chamber 1, Let both ends of the bearing tallies with the grooves on the bearing base.

5) Use screws to fix the left and right bearing base 3 on to the respective bearing base holder 4.

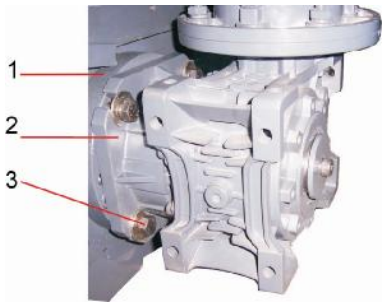
Picture 3-4: Installation of Bearing and Blade Rest 2

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.

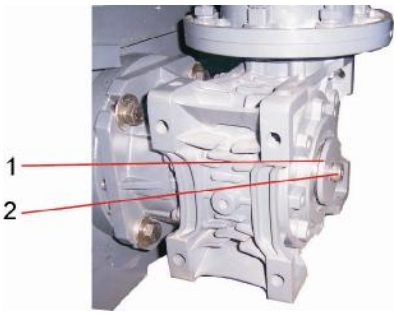
3.4 Installation of Motor

1) Install the motor and the reducer on the main shaft in right direction 1; its hole shall match the hole of the bearing pedestal 1 and the flange of the reducer 2 shall fit the surface of bearing pedestal. Afterwards, tighten it with the screw (M12, torque 86Nm).



Picture 3-5: Installation of Motor 1

2) Tighten the main shaft with the flange 1 and the hexagonal socket head cap screw 2.



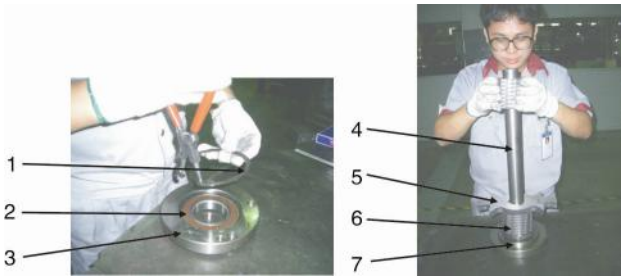
Picture 3-6: Installation of Motor 2

3.5 Installation of Rotating Blade and Fixed Blade

Note:

The blade is very sharp edged and wear gloves and take great care before installation to avoid injury!

1) Install the bearing 2, bearing washer 1, bearing sleeve 7 into the bearing base 3.
2) Insert the blade shaft 4 into the bearing sleeve vertically 7. Then sleeve the staggered blade 5 and the teeth blade 6 on the bearing spacing.



Picture 3-7: Installation of Rotating Blade and Fixed Blade 1

3) Put the rotating blade rest at the bottom block of the cutting chamber and align its holes with the holes on cutting chamber.

Picture 3-8: Installation of Rotating Blade and Fixed Blade 2

4) Use a wrench to tight up all the screws on bearing block or cutting chamber and lock them up with right torque (M12x25).
5) After installed the rotating blade rest to the housing, mount fixed blades that correspond with teeth cutters on pressing block and align their holes. Lockup the fixing screw (LOCTITE243 thread fixing glue is recommended). (Fixing screw for front fixed blade is M10x30, while for back fixed blade is M10x35).

Picture 3-9: Installation of Rotating Blade and Fixed Blade 3

Caution!

In order to avoid personal injury and machine damage, the lockup screws has to be tightened.

3.6 Installation of Feed Box, Feed Throat and Storage Box

1) Put the feed box in the cutting chamber, fix and tighten it with screw (M8).

Picture 3-10: Installation of Feed Box, Feed Throat and Storage Box 1

2) Carry the feed throat and insert it in the feed box.

Picture 3-11: Installation of Feed Box, Feed Throat and Storage Box 2

3) Upon insertion of the feed throat, its hole shall match that of the feed box. Then tighten it with screw (M8).
4) Buckle the material stopper at the top of the feed box and press it with the feed throat.

Picture 3-12: Installation of Feed Box, Feed Throat and Storage Box 3

5) After installation of upper components, carry the storage box with two hands and slightly push in along its track.

Picture 3-13: Installation of Feed Box, Feed Throat and Storage Box 4

Note!

Each screw shall be tightened with correct torque.

4. Operation Guide

4.1 Startup Pretest

Unpainted part of the machine has been covered with stainless oil. Before use, the stainless oil should be cleaned.

1) Clean with a towel.
2) Wash with a towel dipping with amyl acetate.

4.1.1 Before the First Startup

1) Check whether the granulator is in the level state.
2) Check the space of the cutting tools to see whether the lockup screws of the blades are tightened (torque 215Nm).
3) Before granulating, make sure the main shaft of the granulator is in right rotating direction.

Caution!

Adjust the machine to make its four holders to share the weight and be in a level state.

4.1.2 After First Startup for 2 Hours

1) Check the space of the cutting tools of the fixed blades and rotating blades again; check whether the lockup screws of the blades are loose.
2) Check the position-adjusting screws of the motor and check whether the position-adjusting screws are tightened.

4.1.3 After First Startup for 20~30 Hours

Check and adjust the belt's tensility after a 20~30-hour full-load operation.

4.2 Circuit Connection

The installation of the granulator's circuit must be conducted by the professional electricians.

1) Connect granulator to the power.
2) Connect the transmission belt clockwise.

4.2.1 Check the Running Direction of the Motor

1) Check whether the feed box or feed inlet screw is locked up.
2) Check whether the storage box is shut off properly.
3) Ensure the main power switch is in ON position.
4) Check the emergency stop.
5) Start the granulator via pressing the START button and stop the granulator via pressing the STOP button.
6) The granulator needs some time to fully come to a halt; After full stop, check whether the running direction is clockwise.

CAUTION!

The cutting tools may be damaged and the granulating capability will be reduced if there is a wrong running direction. Please disconnect the power and transpose any two wires of the three in the main power.

4.3 Opening the Feed Box and the Storage Box

Note!

Prior to opening the feed box and the storage box, cut off the main switch and the power supply on the granulator.

Caution!

The blade is very sharp-edged and easy to injure people.

4.3.1 Opening the Feed Box

1) Check if the feed box is empty and then cut off the main power;
2) Loosen the long hexagonal screw.
3) Open the feed box backwards.

Picture 4-1: Opening the Feed Box

4.3.2 Opening the Storage Box

1) Cut off the power supply of granulator.
2) Loosen the long hexagonal screw.
3) Draw out the storage box.

Picture 4-2: Opening the storage box

4.4 Closing the Feed Box and the Storage Box

4.4.1 Closing the Feed Box

Note!

The feed box shall be tightly closed, otherwise the machine cannot start.

1) Check no powder remains on the interface surface or corner.
2) Close the feed box forwards.
3) Tighten the hexagonal screw to fix the feed box.

4.4.2 Closing the Storage Box

Note!

Before closing, clean the interface surface.

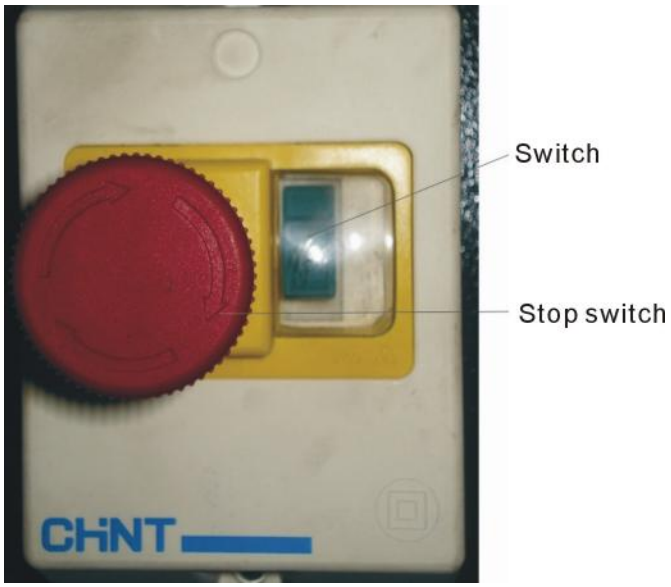
Be careful!

Don't get squeezed and injured.

1) Check no powder or leftover material around the cutting chamber and the storage box; timely remove them if any;
2) Push in the storage box along the track;
3) Tighten the hexagonal screw to fix the storage box.

4.5 Start and Stop the Granulator

The granulator is controlled by main power switch, safety switch, START/STOP button and emergency stop button.



Picture 4-3: Motor Circuit

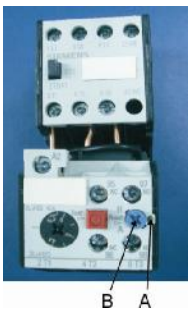
CAUTION!

If there are ungrinded crew materials in the feed box or cutting chamber, the granulator shall NOT be stopped, otherwise the crew materials will blockade the rotor and the motor will be overloaded next time you start the machine up.

5. Trouble Shooting

5.1 Granulator doesn't Run

1) Check the emergency stop switch is at its position; and turn the button in arrow direction (anti-clock) to reset it if not.
2) Check the feed box is fully closed; if not, the machine cannot run; open the door to check the lock clip is tightened or not.
3) Check the motor overload protector.
   The motor is equipped with an overload protector. In the electric cabinet, the machine will strip in case of motor overload. The green pole of the trip (A) comes out. Then push the key "Reset" to restore it. Prior to restarting the machine, check no material is left in the granulator.
4) Check the clearance between blades if the blade of granulator is very blunt or the clearance between blades is incorrect, the machine will stop and the motor overloadprotector will trip. See 3.5 for the blade check and replacement.



Failure	Possible reasons	Troubleshooting methods
Upon the main power switch is on, push the "start" button, but the system cannot start.	The power supply not connected; The emergency stop button not restored; The main power switch damaged; The breaker not closed/or damaged; Power line fails; Electric fuse burnt; Transformer damaged; Safety switch operates; Thermal overload relay tripped.	Connect the power supply; Reset the emergency stop button; Replace the power supply switch; Check the breaker; Check the power line; Check the power line and then replace the fuse; Replace the transformer; Check the safety switch; Reset the thermal overload relay.

Failure	Possible reasons	Troubleshooting methods
Upon the main power switch is on, push the "start" button, the motor makes abnormal sound.	Too low power supply voltage; Lack of phases of power supply; Motor seized; Motor fails.	Check the power supply; Check the power supply; Check the cutting chamber; Check the motor.
In the course of running, the machine suddenly stops.	The granulating motor overloaded; Material absorbing motor overloaded; The voltage fluctuates significantly.	Check the granulating motor and related components; Check the material suction motor; Improve the quality of power supply.

5.2 Other Reasons for Shutdown

If connection of safety switch or limit switch is damaged or loosened, shutdown can also happen.

Note!

Do not disconnect the safety switch or the control switch

6. Maintenance and Repair

6.1 Preservation

At the time of preservation, ensure that no material is left in the machine.

6.1.1 Replace the Blades

CAUTION!

Warning: Self-rotation exists due to non-balanced forces or unstable barycenter.

Wear gloves to avoid being cut and be careful of the sharp blades!

When replacing and maintaining the blades, please refer to chapter 5.5, and comply with the installation request of fixed blade and movable blade to assemble it. Smear the screw with threading fixative agent (it's recommended to use blue LOCTITE 243) to prevent screw from loosening.

Picture 6-1: Replace the Blades

CAUTION!

To decrease the possibility of harm to other people, the replacement action must be conducted by oneself.

To avoid self- rotation, block the rotating blades with a thick wood block.

Be careful with the sharp blades.

Each time to replace the blade, the screw and insulation ring must be replaced also.

1) Remove the fixed blades

Caution!

To avoid self rotation, block the rotating blade with a thick wood block.

1. Remove the screws.
2. Remove the fixed blades.
3. Clean the installation surface of the blades.

Picture 6-2: Remove the Fixed Blades

2) Remove the rotating blades

1. Open the cutting chamber and take out the blade rest.
2. Loosen and remove the hexagon socket cap screw.
3. Clean the whole rotating blades and cutting chamber.

Picture 6-3: Remove the Rotating Blades

Caution!

Press the pressing block and blade when you remove the last screw so to avoid personal injuries.

3) Install the blades

Clean carefully the fixed blades and rotating blades and then install them.

 CAUTION!

Each time to replace the blade, the screw and insulation ring must be replaced also. Install the rotating blades, then the fixed blades, finally the front fixed blades. More details about replacing or maintaining the blades to see chapter 3.5.

6.2 Transmission

6.2.1 Routine Preservation of Reducer

After the reducer runs for its first 400 hours, the grease shall be replaced. The period of grease replacement will be 4000 hours afterwards. Sufficient amount of grease shall be maintained in the reducer box and periodic check is needed. Timely supplement or replace the grease when it is found the amount of grease decreases or the quality of grease deteriorates. Please keep the appearance of mixing motor and reducer clean and timely remove dust and dirt to better dissipate heat.

Machine components	Service life
Reducer	5 years
Bearing	40,000 hours
Breaker	100,000 times

6.3 Preservation

At the time of preservation, ensure that no material is left in the machine.

 Note!

All maintenance activities shall be done by professional staff to avoid any injury and damage to the machine.

6.3.1 Daily Check

1) Check no damage to the material fender in the feed box and replace it in case

of any damage.

2) Check if the emergency stop switch functions normally. Start the machine and then push the emergency stop switch. When restoring, turn the button in the arrow direction (i.e. anticlockwise).
3) Check the main power switch to see if the functions of start, stop and reverse are normal.

6.3.2 Weekly Check

1) Check the power line of machine has worn or damaged, if so, replaces It immediately.
2) Check the safety switch.
3) Check the electrical connectors have loosened or not.

6.3.3 Monthly Check

1) After the reducer runs for its first 400 hours, the grease shall be replaced. The period of grease replacement will be 4000 hours afterwards. Sufficient amount of grease shall be maintained in the reducer box and periodic check is needed. Timely supplement or replace the grease when it is found the amount of grease decreases or the quality of grease deteriorates. Please keep the appearance of mixing motor and reducer clean and timely remove dust and dirt to better dissipate heat.
2) Check the cutting tool is not loosened or worn.

6.4 Cleaning

 Note!

When opening the feed box, be careful not to touch the blade that is very sharp-edged and may injure people.

1) Before the machine is stopped, check if the feed box is empty.
2) Clean the outer surface of feed box.
3) Close the main power switch.
4) Clean the material fender of feed box with the deduster.
5) Loosen the long hexagonal screw and then open backwards the feed box.

6) Clean the inner surface of feed box.

7) Loosen the hexagonal screw and remove the storage box.

8) Clean the storage box.

9) Clean the cutting chamber internally and externally.

6.5 Maintenance Schedule

6.5.1 About the Machine

Model _____ SN _____ Manufacture date _____

Voltage_____Φ_____V Frequency _____ Hz Power _____ kW

6.5.2 Check after Installation

- ☐ Check if the lockup screws of the fixed blades are locked firmly.
- ☐ Check if the flange of the speed reducer has been locked firmly.

Installation of electrical elements

- ☐ Voltage: _____ V _____ Hz
- ☐ Specs of the fuse: 1 Phase _____ A 3 Phase _____ A
- ☐ Check the phase sequence of the power

6.5.3 Daily Check

___/___/___

☐ Check main power switch
☐ Check emergency stop switch and reverse switch
☐ Check start/stop button
☐ Check material keeping back plate (strips)

___/___/___

☐ Check main power switch
☐ Check emergency stop switch and reverse switch
☐ Check start/stop button
☐ Check material keeping back plate (strips)

___/___/___

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☐ Check emergency stop switch and reverse switch
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☐ Check start/stop button
☐ Check material keeping back plate (strips)

___/___/___

☐ Check main power switch
☐ Check emergency stop switch and reverse switch
☐ Check start/stop button
☐ Check material keeping back plate (strips)

6.5.4 Weekly Check

___/___/___

☐ Check if there is any damaged cables
☐ Check if there is loose electrical connections

___/___/___

☐ Check if there is any damaged cables
☐ Check if there is loose electrical connections

___/___/___

☐ Check if there is any damaged cables
☐ Check if there is loose electrical connections

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☐ Check if there is any damaged cables
☐ Check if there is loose electrical connections

___/___/___

☐ Check if there is any damaged cables
☐ Check if there is loose electrical connections

6.5.5 Monthly Check

___/___/___

- ☐ Check the condition of the speed reducer
- ☐ Check the safety switch of the machine
- ☐ Check the motor overload protector
- ☐ Check if the blades are firmly locked

___/___/___

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- ☐ Check the safety switch of the machine
- ☐ Check the motor overload protector
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- ☐ Check the motor overload protector
- ☐ Check if the blades are firmly locked

___/___/___

- ☐ Check the condition of the speed reducer
- ☐ Check the safety switch of the machine
- ☐ Check the motor overload protector
- ☐ Check if the blades are firmly locked

6.5.6 Half-a-year or 1000-hour-running Check

/ /

- ☐ Check the replacement of speed reducer's lubrication
- ☐ Check the lubrication of bearing、motor and rotating shaft
- ☐ Check the noise during operation
- ☐ Evaluation of the machine condition

/ /

- ☐ Check the replacement of speed reducer's lubrication
- ☐ Check the lubrication of bearing、motor and rotating shaft
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