SGS-60D Series

Two-shaft Shredders

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Version: Ver.A (English)

SHINI®
plastics technologies

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1. General Description

Please read carefully the operation instructions before install and use this machine in order to prevent from any human injury or damage to the machine.

Note!
Granulator's blades are sharp and users are vulnerable from being cut, which requires users to pay attention to them.

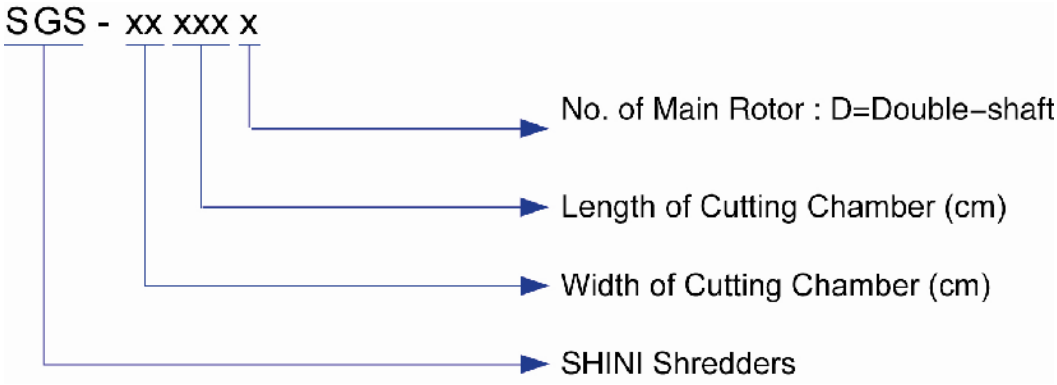
No treating with poisonous and inflammable materials!

SGS-60D series of light-duty double-shaft granulator contains two types for your choice (that is, SGS-6090D and SGS-60120D) and it is available for users to select the type fits the best according to their requirements.

The newly developed SGS-D series shredders from our company is specially designed to solve the pro-blem of "traditional granulator can’t recycle waste material". It absorbs the advantages from craft brother company and the cutter of shredder takes the lead in adopting V-shape arranged rotor cutting technology, which could be widely used for cutting all kinds of plastic piece, plastic with thin shell, foam mattress, packaging belt, rag, plastic portiere, leather, all kinds offodder, matchwood, wood flour, paperboard, textile, medical waste, tyre of minicar etc.

Model: SGS-6090D

1.1 Coding Principle



1.2 Features

1) Adopts high-power cutter shaft with low rotating speed and strong torsion to crush and make a strong shredding.
2) The cutter adopts the latest V-shaped arranged rotor cutting technology, which could keep the smoothness of shredding and accordingly increase the service life of cutter and machine parts substantially.
3) The cutting chamber adopts insert and composite structure which could be taken down and maintain conveniently.
4) The cutter adopts high quality alloy tool steel refined by the hardening treatment with good rigidity and impact resilience.
5) The feeding hopper is designed with transparent window which is convenient for the operator to examine the shredding situation during the running of machine.
6) The overload protection of the motor adopts LOGO logical defence program to guarantee the safe operation of the equipment.
7) This machine can work with belt conveyor to convey the crushed material to the central granulator for regrinding.
8) The shredder of this series has the motor overload protection.
9) The maintenance switch on the control panel makes maintenance much safer.

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	SGS-6090D	SGS-60120D
Motor Power (kW, 50/60Hz)	15×2/17.3×2	15×2
Speed of main rotor (rpm, 50/60Hz)	41	41
Number of main rotor	2	2
Material of the cutters	SKD11	SKD11
Number of cutters	15 pcs×2	15 pcs×2
Dia. Of blade and thickness (mm)	Φ260×30	Φ260×30
Cutting chamber size (mm)	600×900	600×1200
Max Throughput Capacity (kg/hr, 50/60Hz)	500	600
Max Noise level with no load dB (A)	110	110
Regrind conveying device	○	○
Dimensions		
H (mm)	2420	2420
H1 (mm)	2130	2130
H2 (mm)	426	426
W (mm)	1460	1460
W1 (mm)	280	280
W2 (mm)	640	640
W3 (mm)	1000	1000
D (mm)	2161	2472
D1 (mm)	1318	1618
D2 (mm)	1033	1333
D3 (mm)	450	700
Weight (t)	3300	3600

Note: 1) " √" standard, "○" Stands for options.

2) Max capacity of the machine is subject to diameter of screen mesh and composition of material. The above data is based on 5 mins continually shredding of PVC sprue.

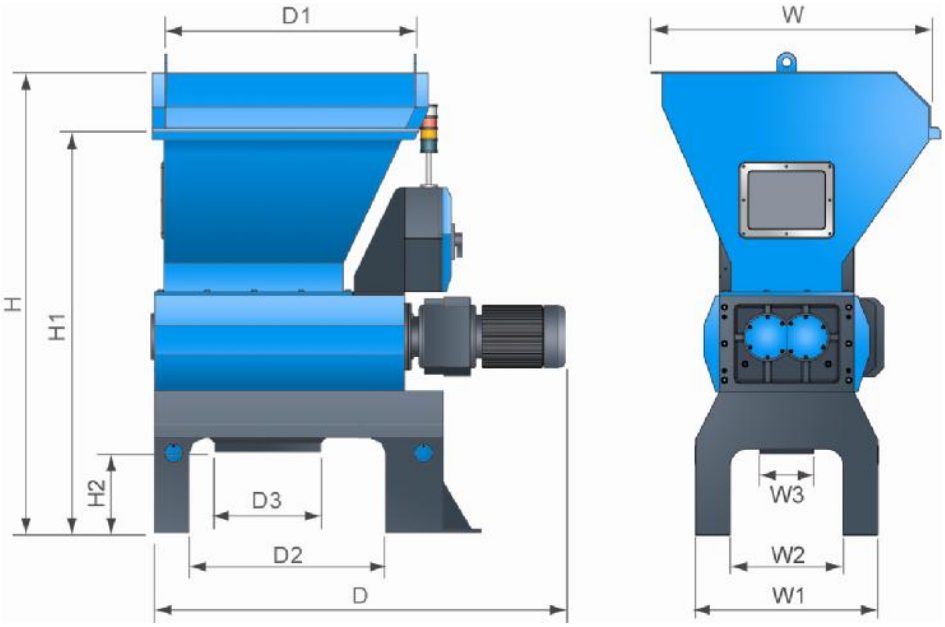
3) Noise level will vary with different materials and motor types.

4) SKD11 are JIS code number.

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

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

1.3.2 Dimensions



Picture 1-1: 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.

Rotating blades of granulator are extremely sharp, which are liable to cause injuries.

Be particularly careful when blade rest is rotating manually.

No starting up granulator before feed hopper is set up.

Notice:

Operating personnel shall put on ear shield while granulator is crushing materials.

Please scrutinize whether the conveyer belt nips clothes, arms and feet of operating personnel while using it in cooperation with conveyor belt.

Please scrutinize whether the conveyer belt nips clothes and bodies of operating personnel while using it in cooperation with conveyor belt when conveying plastic wastes with high temperature in order to ensure that the materials are conveyed in the center of conveyor belt.

Attention!

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

1.4.2 Machine Transportation and Storage

Transportation

1) SGS-60 series of granulator is packaged with slatted crate or wood case with wood plate as its cushion, which is suitable for forklift to change positions in a quick way.
2) There are respectively two lifting holes on both left and right sides of machine base for the convenience of lifting and there are two lifting lugs on the upper part of feed hopper for the convenience of lifting feed hopper when disassembly it.
3) Please do not make it collide with other objects during the transportation in order to avoid any machine damage.
4) Machine structure is well-balanced with transfer hoisting rings and please be careful while lifting the machine in order to avoid machine's falling down.
5) Temperature requirement for the preservation of this machine and its auxiliaries for long-distance transportation shall be within the range from -25℃to +55℃ and the temperature at +70℃ is allowed for short-distance transportation.

Storage

1) SGS-60 series of granulator shall be stored indoors with the environmental temperature between 50℃ to 40℃ and humidity lower than 80%.
2) Please turn off all power supplies and shut down main power switch and control switch.

3) Please separate the entire machine especially its electric parts from water resource in order to avoid any potential faults caused by water vapor.
4) Please wrap tightly the machine with plastic film in order to keep from the invasion of dust and rain.

Working Environment

Indoor temperature shall never exceed +45℃ and humidity shall never exceed 80%.

No using this machine in following situations:

1) Damaged cables.
2) No running the machine on wet floors or after the machine is caught in the rain in order to avoid electric shock.
3) Before the inspection, repair and installation by professional maintenance personnel if the machine is damaged or dismantled.
4) The machine works normally with the environment at an elevation below 3000m.
5) The machine requires peripheral space of 1m at least during its operation. Please keep it a distance of 2m at least from inflammable materials.
6) Please avoid vibration and influence by magnetic force within the work area.

1.4.3 Treatment with Discarded Parts

Please cut off power supply when the equipment's service life expires and it is unavailable for continual service. Please treat it well according to local regulations.

Fire alarm. Please equip it with CO_2 dry powder fire extinguisher to avoid fire disaster.

No using the granulator to deal with inflammable and explosive materials, or materials polluted by inflammable and explosive materials and liquids, which is liable to cause explosion or fire disaster.

Screw tightly the screws according to the regulation requirements.

Please cut off materials, which have larger length and width in comparison with those of feed hopper, until they are less than the caliber of feed hopper.

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:

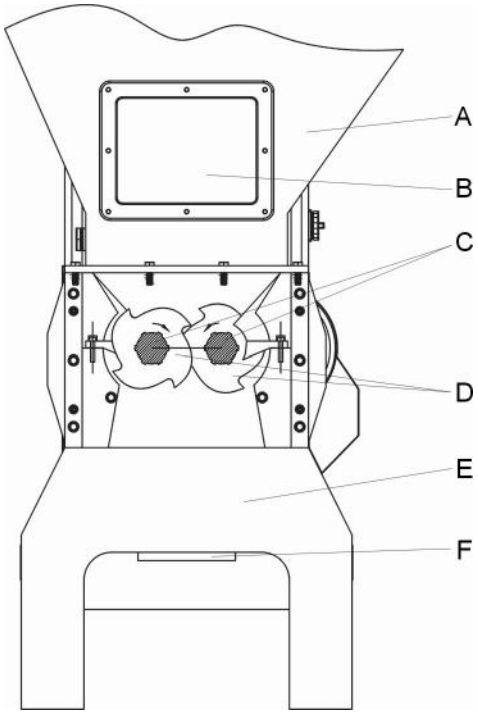
1. Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
2. Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible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

SGS-60D series of granulator adopts double shafts and double drives with low rotation speed and strong twisting moment, which is suitable for crushing wastes that granulators are unable to crush such as hollowed plastic shells, foam mattress, rags, all kinds of door screens, window curtains, forage and smashed woods, etc; it is a must to clear away metal dust and dirt before crushing.

2.1.1 Working Principle



Parts name:

A. Feed hopper B. Feed-seeing window C. Castellated bearing D. Crushing blades

E. Base F. Discharging hopper

Picture 2-1: Working Principle

Materials enter crushing chamber through feed hopper (A). Forward and opposite moving blades in front and at back (D) execute the actions of cutting and crushing. Discharging hopper (F) is in the lower part of the crushing

chamber, which makes it easy for the installation of belt conveyor. Belt conveyor is able to transport the crushed materials to granulator for centralized crushing for the second time. Feed-seeing window (B) enables (operators) to observe the general situation of crushing in crushing chamber.

Picture 2-2: Disconnect Power Supply Before Service

2.2 Security System

In order to prevent from accidental human injury during the operation, the granulator is equipped with highly secured protection system.

Blades with high performance in cutting inside the granulator are liable for accidents. Therefore, it is equipped with security system in order to assure human safety.

Nobody is allowed to make any changes of security system in any condition. Otherwise, the machine might be in dangerous state and liable to cause accidents. Maintenance and repair for security system must be accomplished by profession personnel.

The company will not continue to perform any commitment if anyone makes any change of granulator's security system and the replacement of all components must be provided by SHINI company.

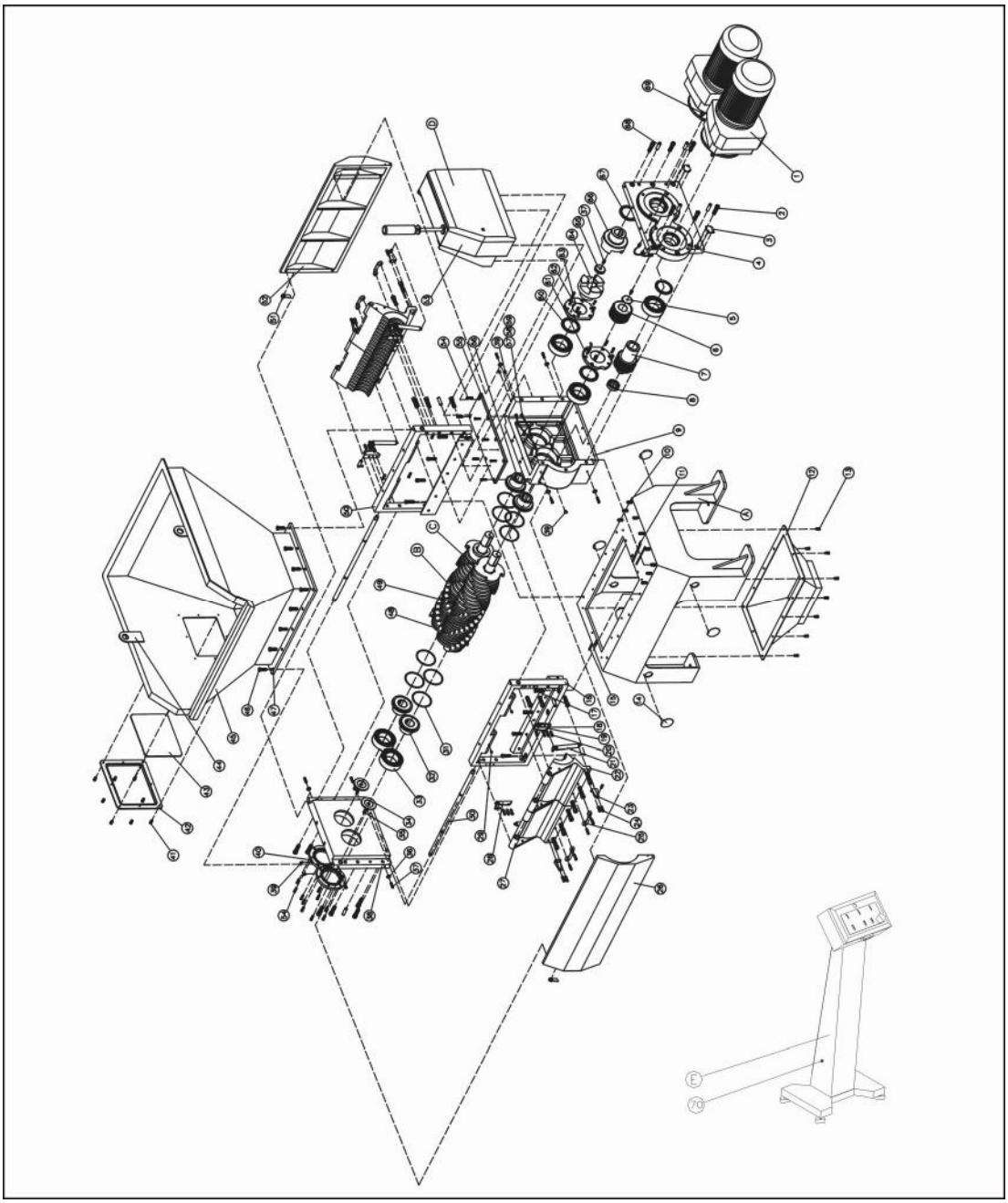
2.2.1 Emergency Switch

There is a red button on the machine's control panel and the machine will stop running after (the user) presses this button. Rotate this button along the arrow direction, which will reset the button (counterclockwise direction).

Picture 2-3：Emergency Switch

2.3 Assembly Drawing

2.3.1 Assembly Drawing



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

Picture 2-4: Assembly Drawing

2.3.2 Parts List

Table 2-1: Parts List

No.	Name	Part No.	
		SGS-6090D	SGS-60120D
1	Motor reducer	YM10107100000	YM10107100000
2	Internal hex bolts	YW61207000000	YW61207000000
3	Left packing board	-	-
4	Gear	BW30609000610	BW30609000610
5	Shaft end tight block	BH10609000210	BH10609000210
6	Bi serial cylindrical roller bearing	YW10609001200	YW10609001200
7	Lower packing board of gear box	YW10609000900	YW10609000900
8	Roller bearing NN3012NSK	YW11301200000	YW11301200000
9	Gear box	BW30609000310	BW30609000310
10	Inner hexagon cylindrical screw (M12 × 65)	YW61126500000	YW61126500000
11	Gear box positioning key	BH10609000510	BH10609000510
12	Front packing board	-	-
13	Inner hexagon cylindrical screw (M12 × 25)	YW61122500000	YW61122500000
14	Internal hex bolts (M16×50)	-	-
15	Internal barrier block (1)	BH10609000110	BH10609000110
16	Front frame	BW30609003010	BW30601205710
17	Hexagon screw bolt (M20 × 65)	YW61206500000	YW61206500000
18	Internal hex bolts (M20×70)	-	-
19	Locating pin	BH10609001710	BH10609001710
20	Inner hexagon cylindrical screw (M10 × 35)	YW61103500000	YW61103500000
21	Feed-seeing window pressure board	YW01080000000	YW01375300000
22	Keep-off comb	BW30609000410	BW30601200410
23	Lifting lug	BH10609001710	BH10609001710
24	Transparent feed-seeing window	YW61083500000	YW61083500000
25	Inner hexagon cylindrical screw (M8 × 35)	BW20012000040	BW20012000040
26	External hex bolts (M16×55)	-	-
27	Feed hopper connecting plate	BW30609000510	BW30601200510
28	Right bearing cover	BH10609002210	BH10609002210
29	Upper packing board of gear box	-	-
30	Internal hex bolts (M10×40)	BH10609002110	BH10601202110
31	D control cabinet components	-	-
32	Back protecting cap	BH10609000410	BH10609000410
33	Self-aligning roller bearing 23122CE4	YW11231200000	YW11231200000
34	Middle packing board	-	-
35	Left bearing cover	YW61205000000	YW61205000000

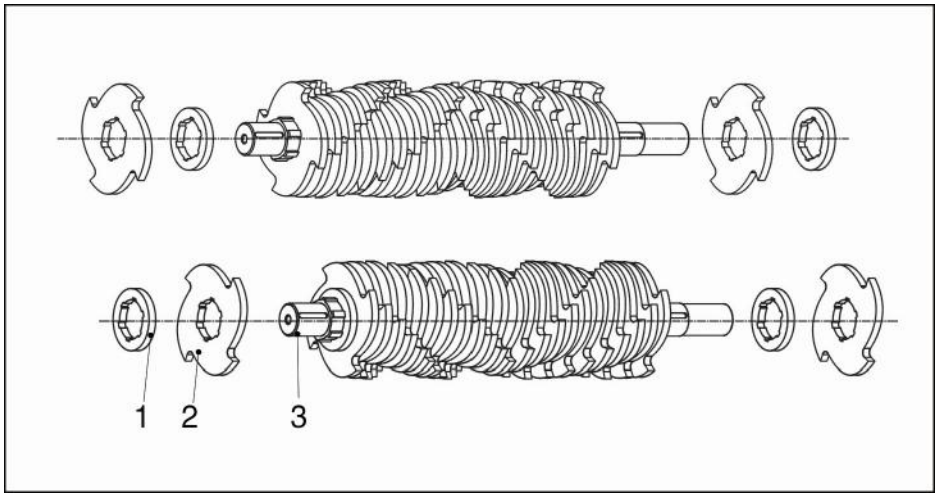
No.	Name	Part No.	
		SGS-6090D	SGS-60120D
36	Self-aligning roller bearing	BH10609002310	BH10609002310
37	Inner hexagon cylindrical screw (M12 × 45)	YW61124500000	YW61124500000
38	Left bearing cover (1)	BW30609000210	BW30609000210
39	Internal hex bolts (M10×45)	YW04010100000	YW04010100000
40	Rear bearing cover 2	BH10609001310	BH10609001310
41	Inner hexagon cylindrical screw (M8 × 20)	YW61082000000	YW61082000000
42	coupling of motor	BH14609000510	BH14609000510
43	Bead flange	BR90609000450	BR90609000450
44	External hex bolts (M16×50)	-	-
45	Rotary shaft lip seal	-	-
46	Hexagon screw bolt (M16 × 55)	YW60165500000	YW60165500000
47	C front blade components	BH10609001010	BH10601201010
48	Control stand	-	-
49	Copper elbow for lubrication	-	-
50	Straight-through joint for lubrication	-	-
51	Pin lock	YW00000600000	YW00000000100
52	M10 lubricating nipple	-	-
53	D control box components	-	-
54	Inner hexagon cylindrical screw (M10 × 50)	YW61105000000	YW61105000000
55	Upper cover plate of gear case	BH10609001910	BH10609001910
56	Right bearing sleeve	BH10609000410	BH10609000410
57	Lubrication straight-through joint	-	-
58	Lubrication copper pipe	-	-
59	Lubrication copper nut	-	-
60	Rotary shaft lip seal	YR20141200000	YR20141200000
61	Left bearing holder (1)	BH10609001410	BH10609001410
62	Left bearing holder (2)	BH10609003010	BH10609003010
63	Lubrication copper elbow	BH12609001810	BH12609001810
64	Main shaft coupling	BH10609002010	BH10609002010
65	Locking base plate at coupling end	BH10609000210	BH10609000210
66	Motor coupling	BH10609002010	BH10609002010
67	Rotary shaft lip seal	YR20141200000	YR20141200000
68	Locating pin	BH10609002410	BH10609002410
69	Hexagon screw bolt (M16 × 40)	YW60164000000	YW60164000000
70	E control stand	BH62609000050	-

* 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 Blades Assembly



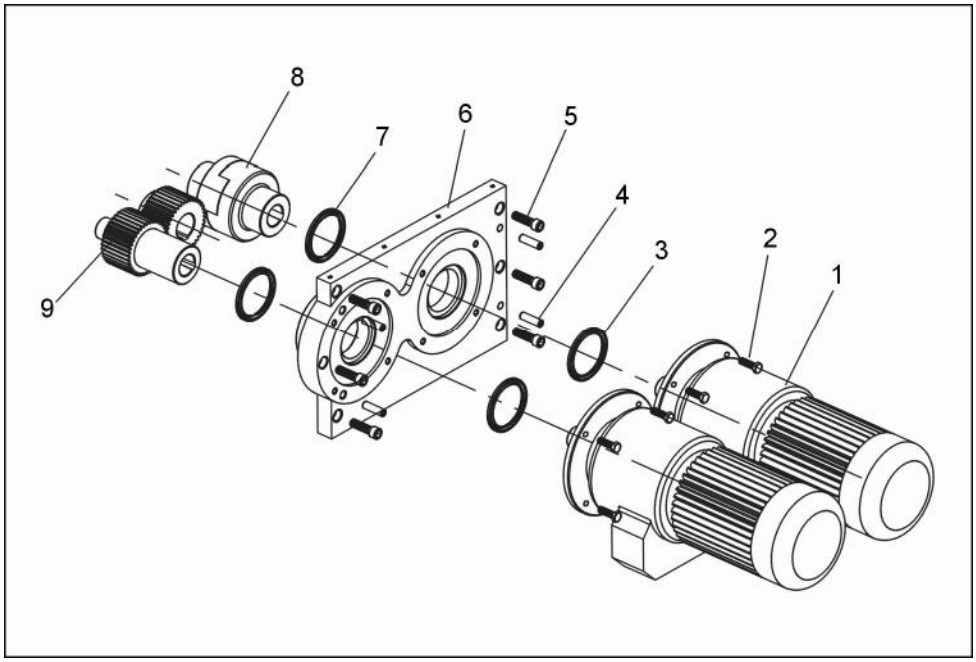
Picture 2-5: Blades Assembly

2.3.4 Blades Assembly Parts List

Table 2-2: Blades Assembly Parts List

No.	Name	Part No./Quantity	
		SGS-6090D	SGS-60120D
1	Blade cover	YW43609000100 /2×15	YW43609000100 / 2×20
2	Blade	YW43609000000 /2×15	YW43609000000 /2×20
3	Bearing	BH10609002710 /2	BH10601202710 /2

2.3.5 Driving Medium



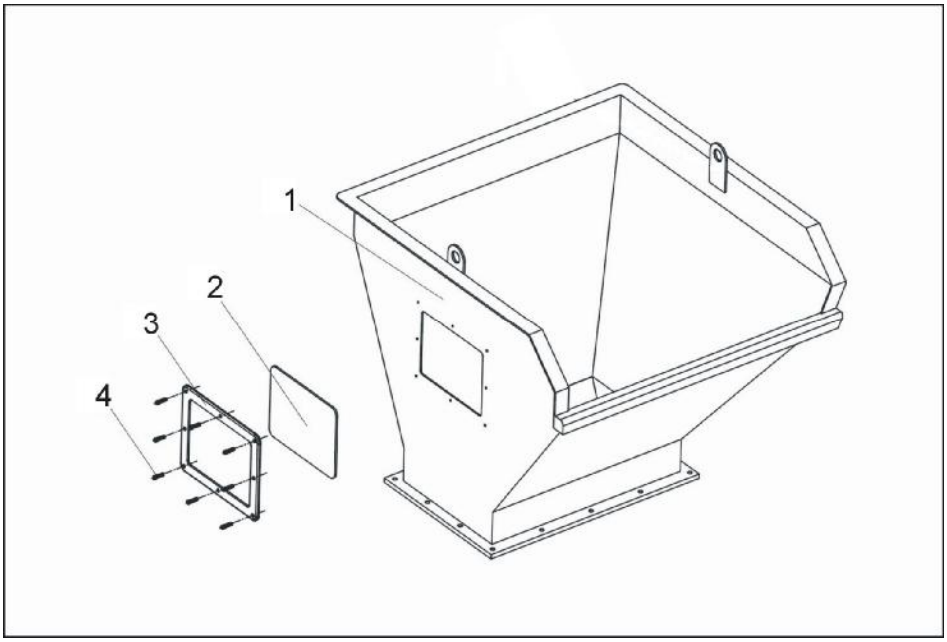
Picture 2-6: Driving Medium

2.3.6 Driving Medium Parts List

Table 2-3: Driving Medium Parts List

No.	Name	Quantity
1	Motor	2
2	Internal hex bolts (M16 × 50)	12
3	Seal ring	2
4	Locating pin	4
5	Internal hex bolts (M20 × 70)	6
6	Right packing board	1
7	Seal ring	2
8	Coupling	1
9	Gear	1

2.3.7 Feed Hopper



Picture 2-7: Feed Hopper

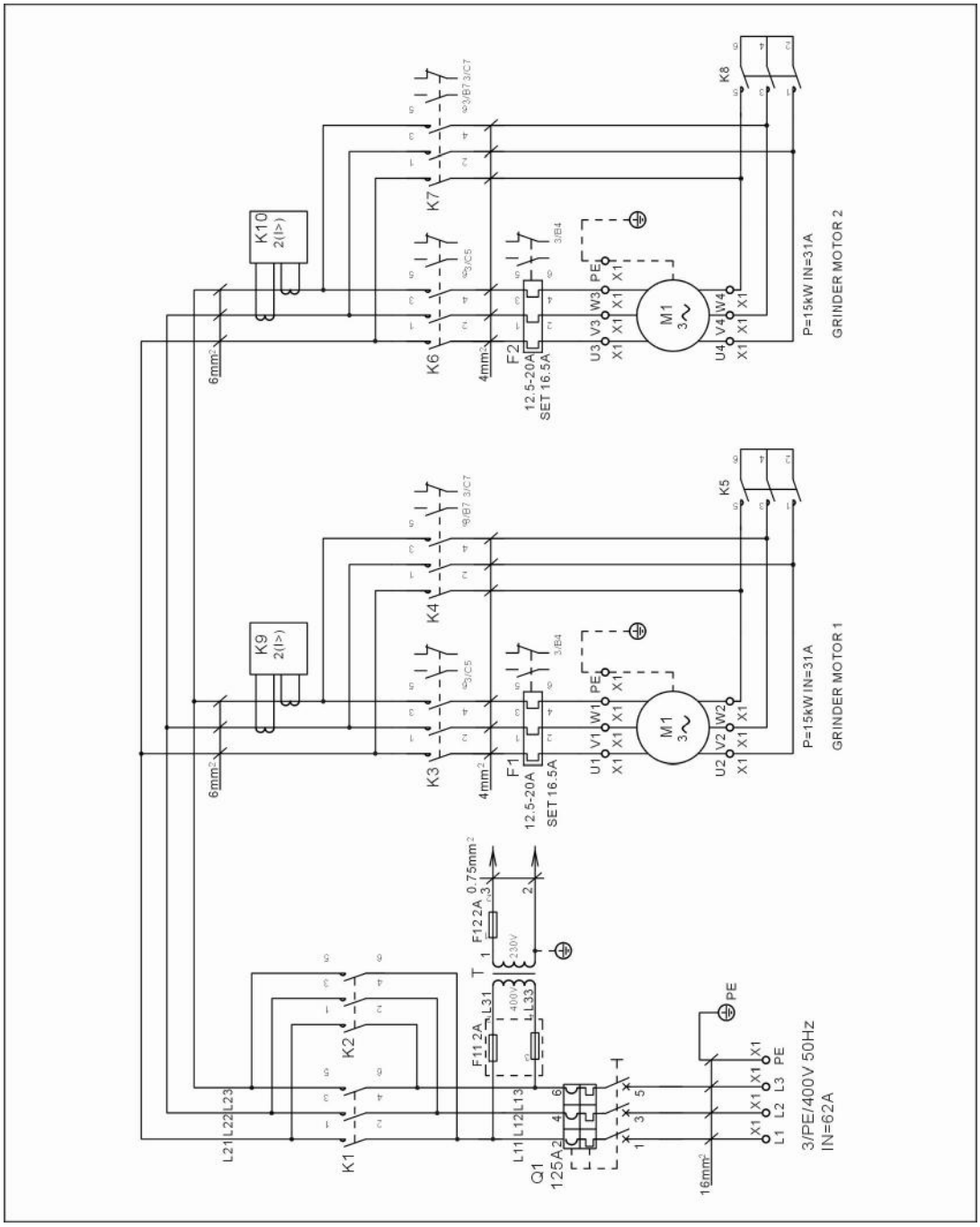
2.3.8 Feed Hopper Parts List

Table 2-4: Feed Hopper Parts List

No.	Name	Quantity
1	Feed hopper	1
2	Feed-seeing window	1
3	Feed-seeing window pressure plate	1
4	Inner hexagon cylindrical screw (M8 × 20)	8

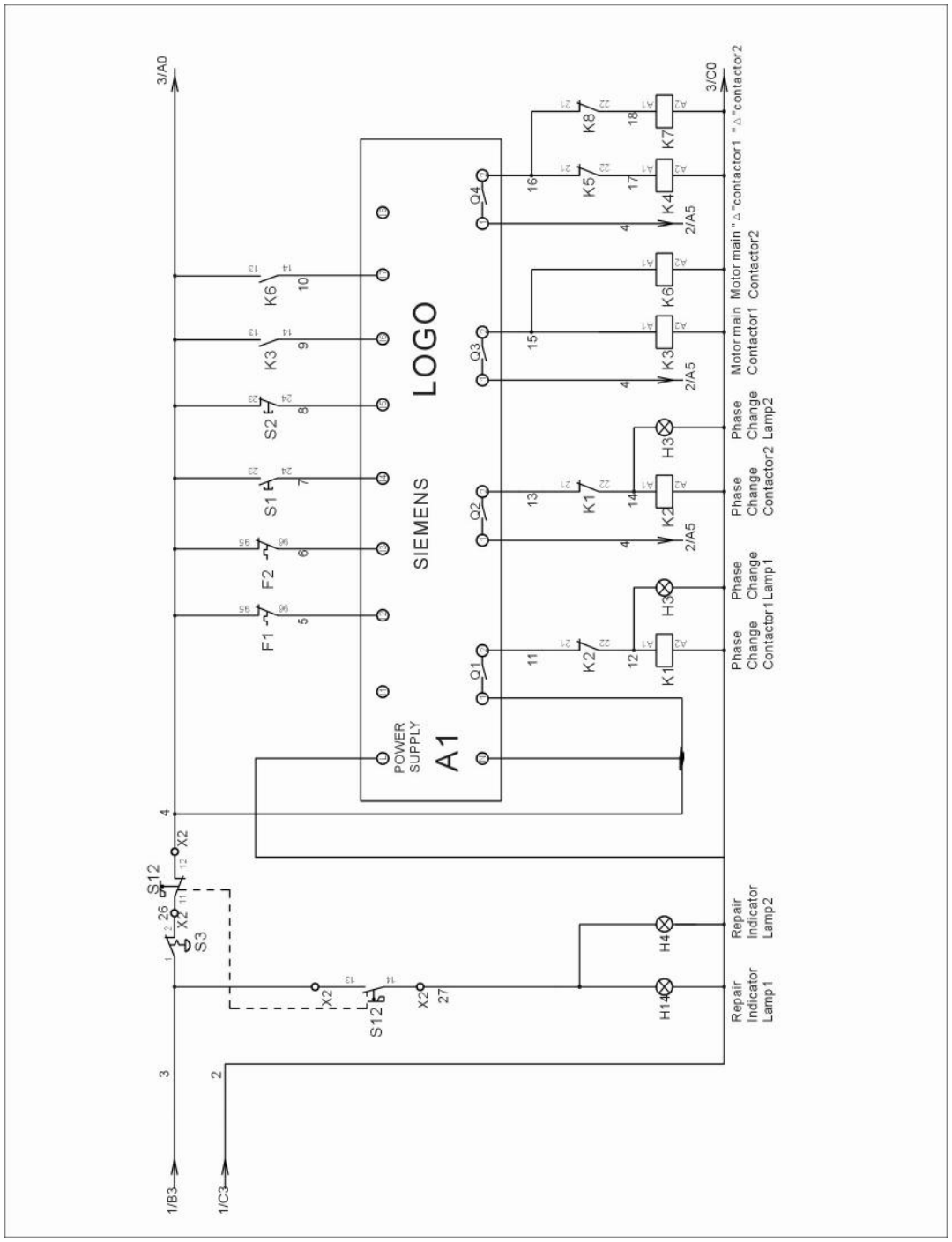
2.4 Wiring Diagram

2.4.1 Main Circuit Diagram (SGS-6090D)

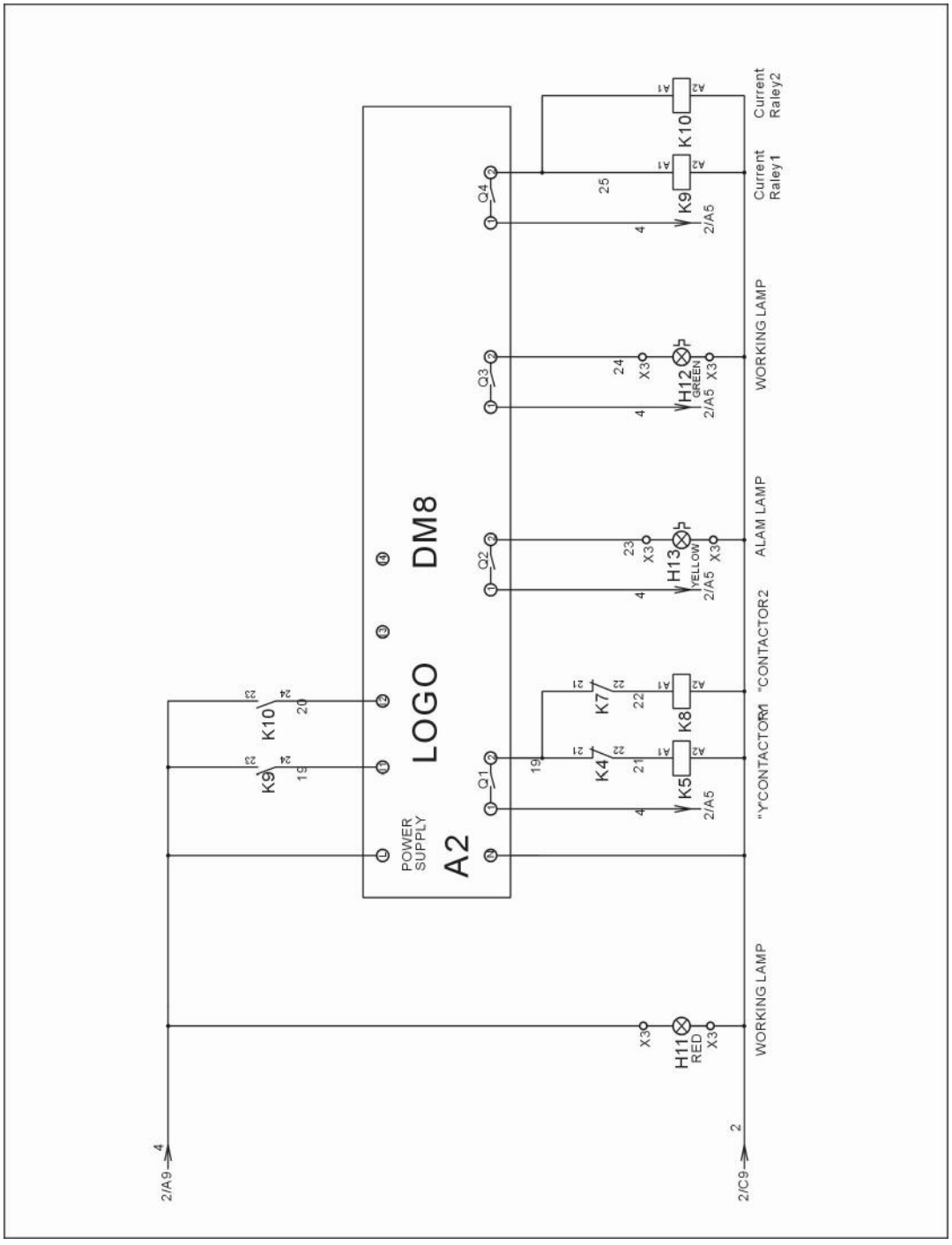


Picture 2-8: Main Circuit Diagram (SGS-6090D)

2.4.2 Control Wiring Diagram (SGS-6090D)

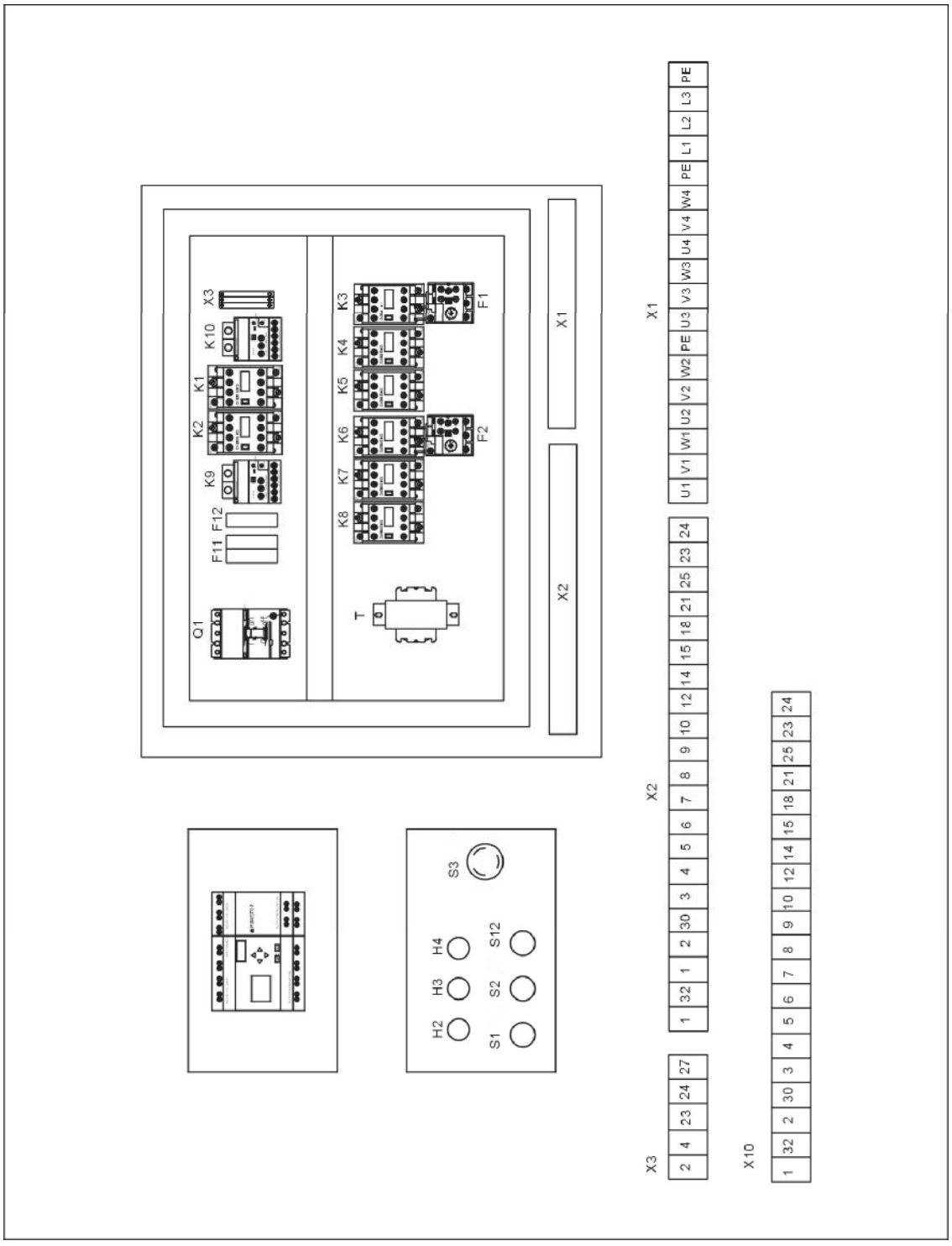


Picture 2-9: Control Wiring Diagram 1 (SGS-6090D)



Picture 2-10: Control Wiring Diagram 2 (SGS-6090D)

2.4.3 Electrical Components Layout (SGS-6090D)



Picture 2-11: Electrical Components Layout (SGS-6090D)

2.4.4 Electrical Components List (SGS-6090D)

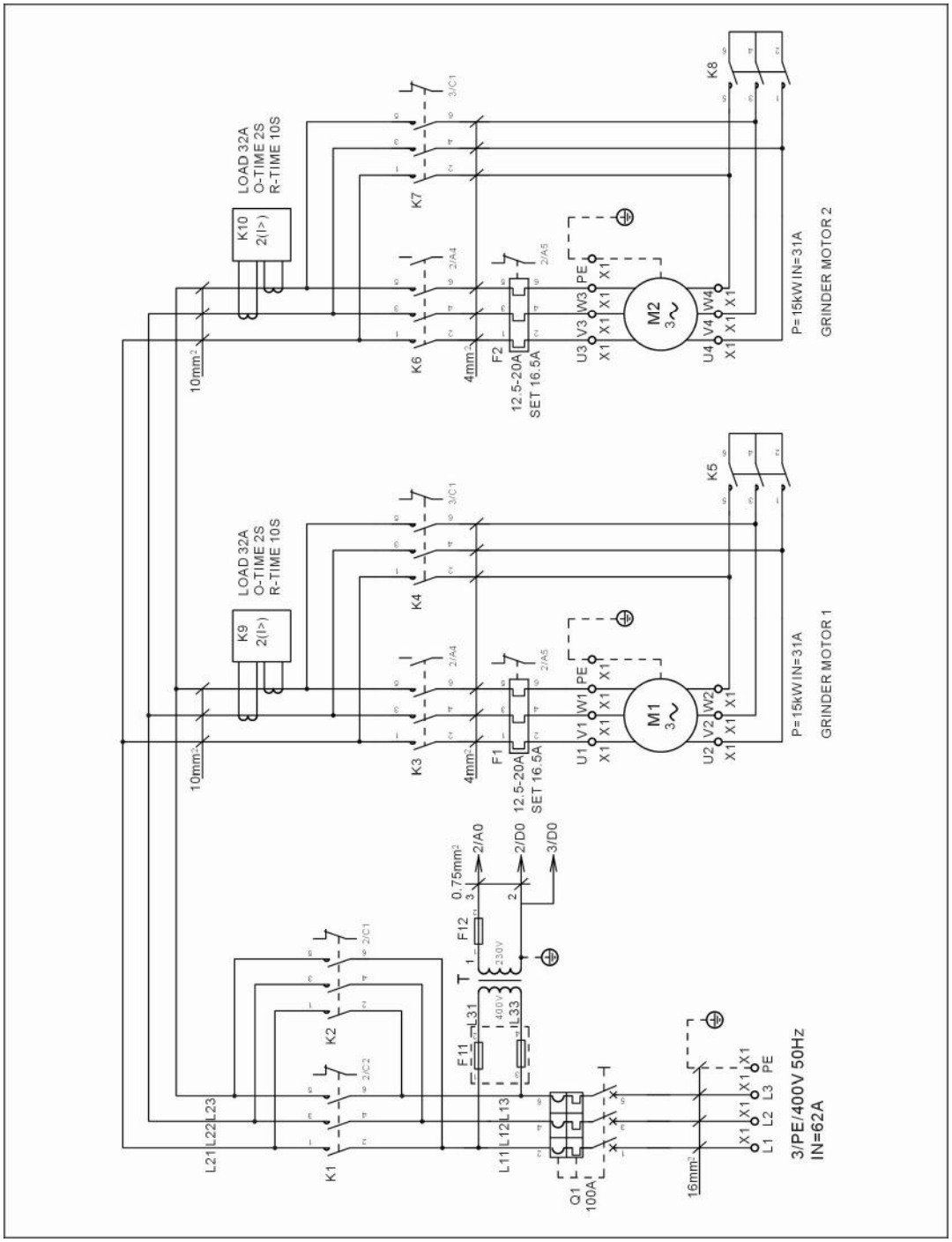
Table 2-5: SGS-6090D Electrical Components List

No.	Symbol	Name	Specification	Part No.
1	Q1	Circuit breaker*	125A	YE41161200000
2	K1 K2	Contactor**	230V 50/60Hz	YE00472200100
3	K3 K4 K6 K7	Contactor *	230V 50/60Hz	YE00331100000
4	K5 K8	Contactor *	230V 50/60Hz	YE00321100000
5	K9 K10	Current ralay*	230VAC 5~60A	YE04476000100
6	F1 F2	Overload relay	12.5~20A	YE01125200100
7	F11	Fuse**	2P	YE41032200000
8	-	Fuse core**	2A	YE46002000100
9	F12	Fuse**	2A	YE41001000000
10	S1	Start button*	400V AC12 10A	YE11325300000
11	S2	Stop button*	400V AC12 10A	YE11375800000
12	S3	Emergency stop button**	400V AC12 10A	YE11320300000
13	S12	Key choose switch	-	YE10202500000
14	A1	Program relay*	230VAC	YE81105200000
15	A2	Program relay	230VAC	YE82823000000
16	H11	Four lamp (RED)	230VAC	YE83702300000
17	H12	Four lamp (GREEN)	230VAC	YE83702300000
18	H13	Four lamp (YELLOW)	230VAC	YE83702300000
19	H14	Four lamp (WHITE)	230VAC	YE83702300000
20	H2 H3	Indicate lamp (GREEN)	230VAC	YE83052300200
21	H4	Indicate lamp (WHITE)	230VAC	YE83052300000
22	X1	Terminal	101A	YE61160000000
23	-	-	-	YE61163500000
24	-	Terminal	41A	YE61040000000
25	-	-	-	YE61043500000
26	X2	Terminal	32A	YE61002500100
27	X3	Terminal	32A	YE61002500100
28	X10	Heavy duty connectors	24P	YE68242400000

No.	Symbol	Name	Specification	Part No.
29	T	Transformer	400/230V 800mA	YE70040000400
30	M1 M2	Motor	400V 50Hz 15kW	YM10107100000

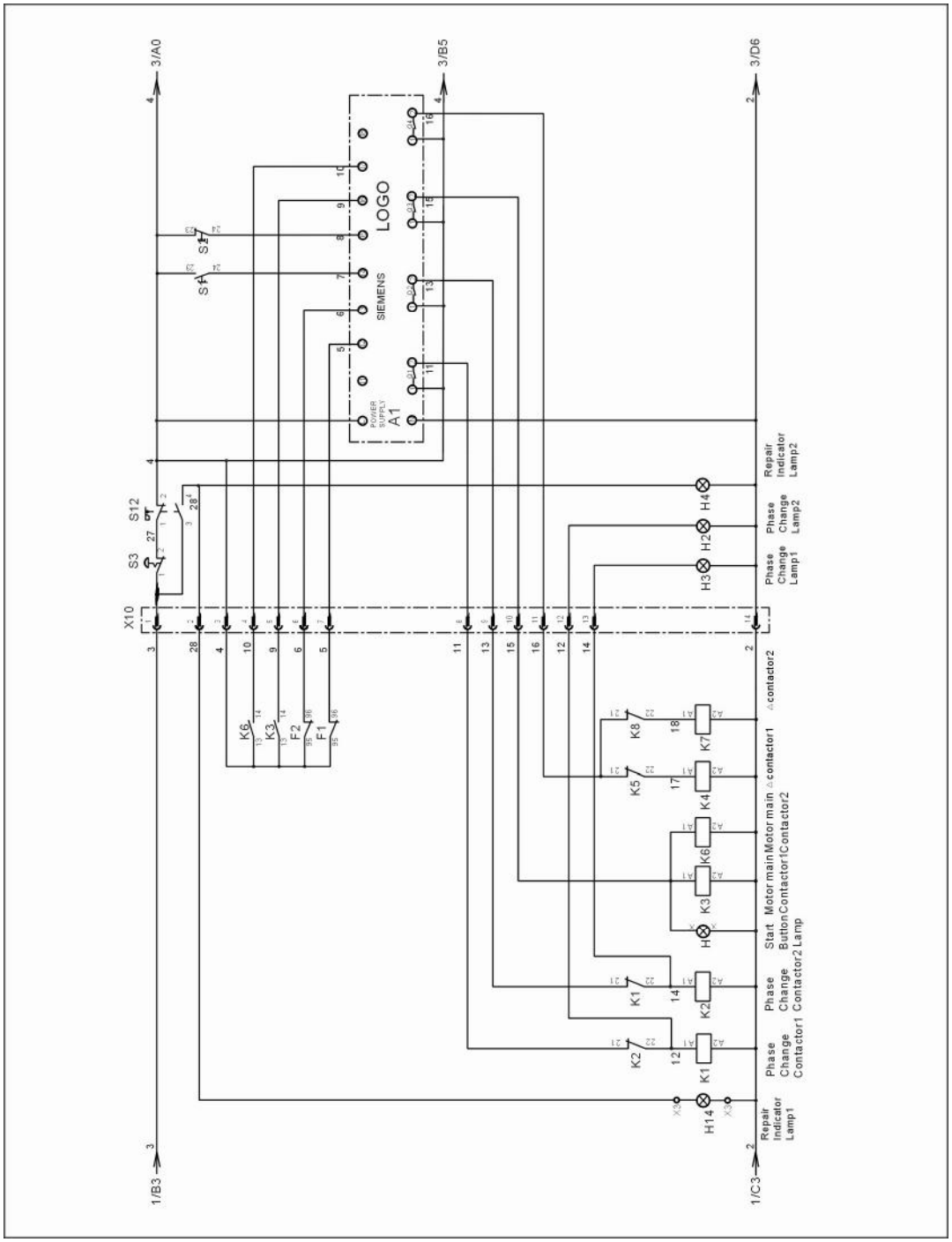
* means possible broken parts.
** means easy broken part. and spare backup is suggested.
Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.4.5 Main Circuit Diagram (SGS-60120D)

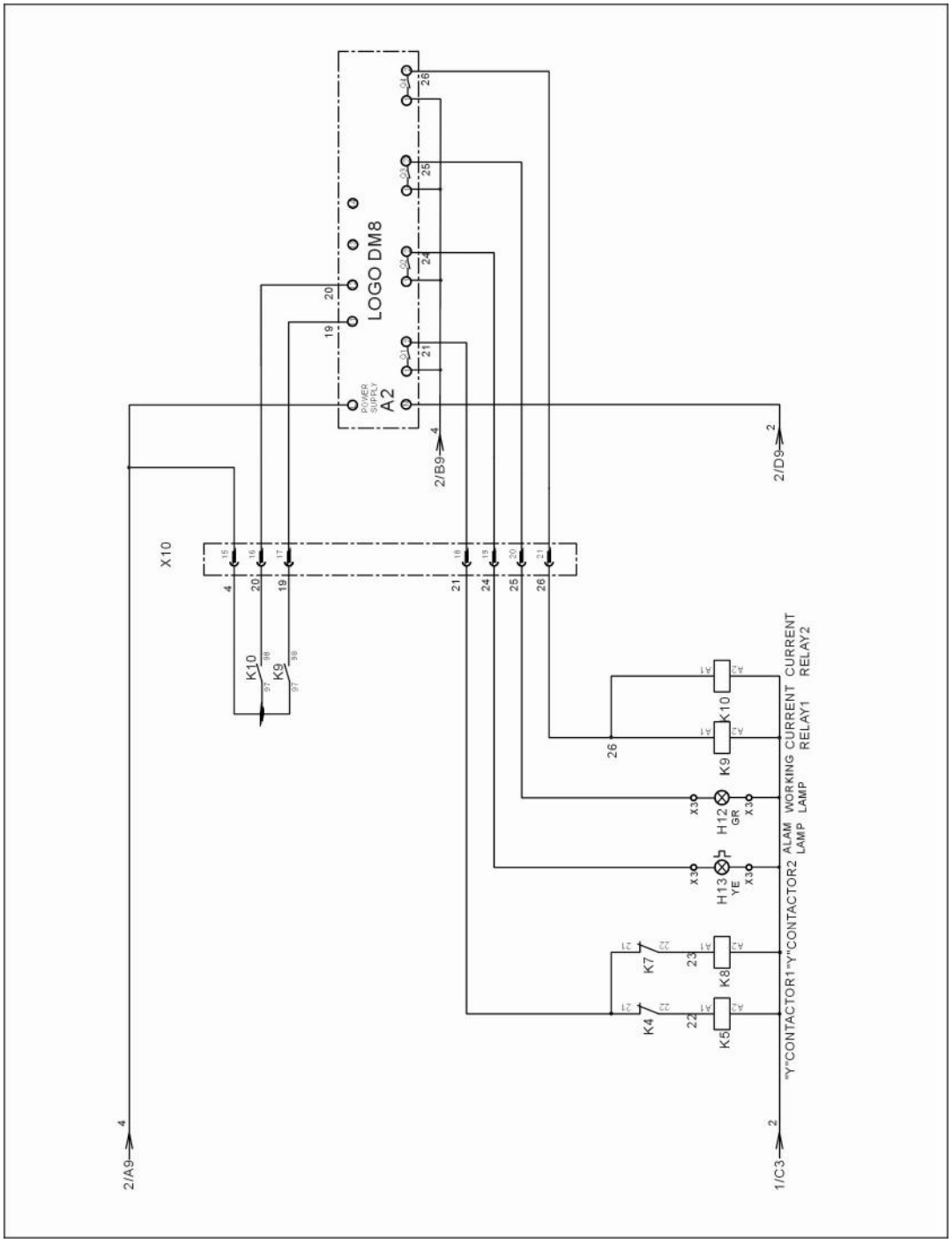


Picture 2-12: Main Circuit Diagram (SGS-60120D)

2.4.6 Control Wiring Diagram (SGS-60120D)

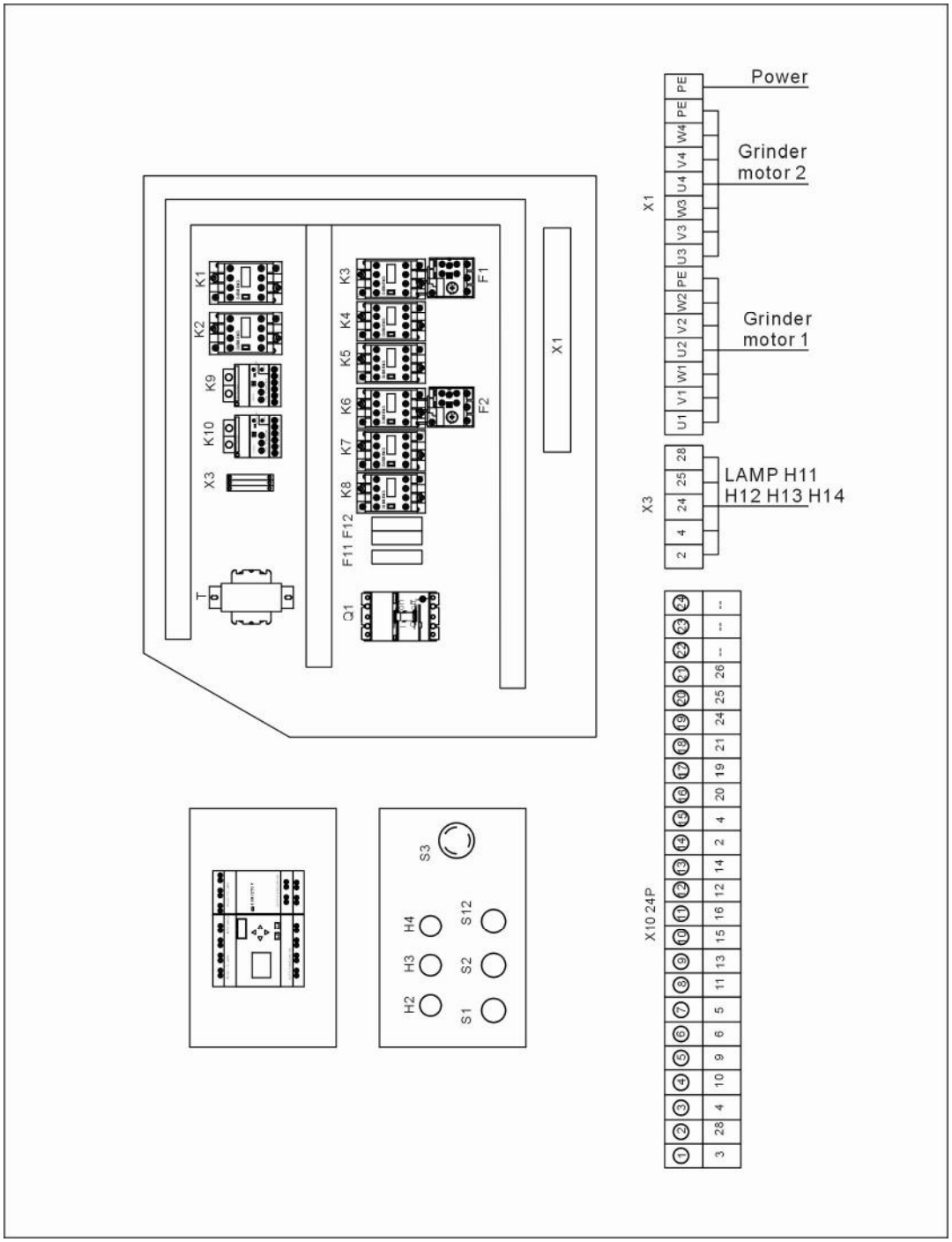


Picture 2-13: Control Wiring Diagram 1 (SGS-60120D)



Picture 2-14: Control Wiring Diagram 2 (SGS-60120D)

2.4.7 Electrical Components Layout (SGS-60120D)



Picture 2-15: Electrical Components Layout (SGS-60120D)

2.4.8 Electrical Components List (SGS-60120D)

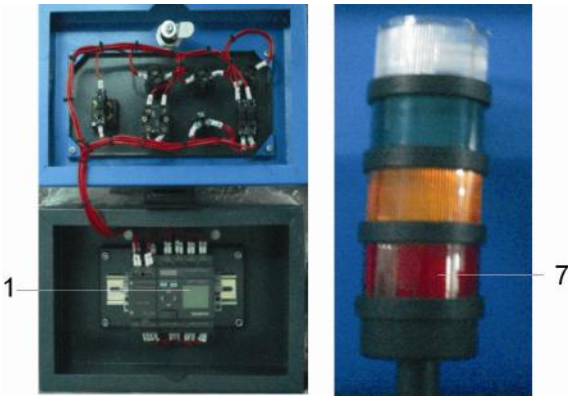
Table 2-6: SGS-60120D Electrical Components List

No.	Symbol	Name	Specification	Part No.
1	Q1	Circuit breaker*	100A	YE41110000000
2	K1 K2	Contactor**	230V 50/60Hz	YE00472200100
3	K3 K4 K6 K7	Contactor *	230V 50/60Hz	YE00331100000
4	K5 K8	Contactor *	230V 50/60Hz	YE00321100000
5	K9 K10	Current ralay*	230VAC 5~60A	YE04476000100
6	F1 F2	Overload relay	12.5~20A	YE01125200100
7	F11	Fuse**	2P	YE41032200000
8	-	Fuse core**	2A	YE46002000100
9	F12	Fuse**	2A	YE41001000000
10	S1 H1	Start button*	400V AC12 10A	YE11325300000
11	S2	Stop button*	400V AC12 10A	YE11375800000
12	S3	Emergency stop button**	400V AC12 10A	YE11320300000
13	S12	Key choose switch	240V 3A	-
14	A1	Program relay*	230VAC	YE81105200000
15	A2	Program relay	230VAC	YE82823000000
16	H11	Four lamp (RED)	230VAC	YE83702300000
17	H12	Four lamp (GREEN)	230VAC	-
18	H13	Four lamp (YELLOW)	230VAC	-
19	H14	Four lamp (WHITE)	230VAC	-
20	H2 H3	Indicate lamp (GREEN)	230VAC	YE83052300200
21	H4	Indicate lamp (WHITE)	230VAC	YE83052300000
22	X1	Terminal	101A	YE61160000000
23	-	Terminal	41A	YE61040000000
24	-	-	-	YE61043500000
25	X3	Terminal	32A	YE61002500100
26	X10	Heavy duty connectors	24P	YE68242400000
27	T	Transformer	400/230V 1000mA	YE70402300000
28	M1 M2	Motor	400V 50Hz 15kW	-

* 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 Electrical Components Instruction

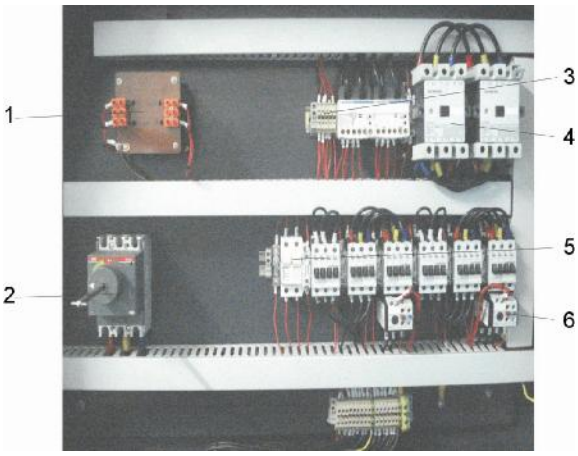
2.5.1 Control Panel Electrical Control Box



Picture 2-16: Control Panel Electrical Control Box / indicator

1. LOGO controller, control operation of the machine.
2. Four-stage indicator, indicating related working condition.

2.5.2 Electrical Components Instruction



Picture 2-17: Electrical Components Instruction

1. Frequency converter, which controls the rotating speed of the scrolling motor.
2. Transformer, provide suitable voltage for the control circuit.
3. Timer, which can setup the suction blower's delay time.
4. Thermo overload relay, which can protect the motor and suction blower when they are overloading or phase opening.
5. Contactor, which connects or disconnects the main circuit.
6. Circuit breaker, which perform the function of short circuit protection or circuit isolation.

3. Installation and Debugging

 Please read carefully this part before installation.

 Please install the machine according to the following orders in order to avoid human injury and machine damage!

 Please be very careful and avoid cut by the extremely sharp blades!

 Power connection of granulator must be accomplished by professional electricians!

Table 3-1: Enclosed List, Torque Forces of Blades and Other Fixing Screws

Screw 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
Tightening torque force (Nm)	50	86	135	215	290	420	570	730

3.1 Installation Notices

1) Please ensure that the voltage and frequency match with those marked on name plate provided by the plant.
2) Connection of cables and ground wires shall accord with local regulations.
3) Please use independent cables and power switches and the diameter of cables shall not be less than that of cables applied in electric cabinet.
4) Cable terminals shall be safe and fixed.
5) This series of machine requires three-phase four-wire power supply. Power supply (L1, L2, L3) connects with live conductor and ground wire (PE).
6) Power distribution requirement:
   Main power supply pressure: ± 10%
   Main power supply frequency: ± 2%

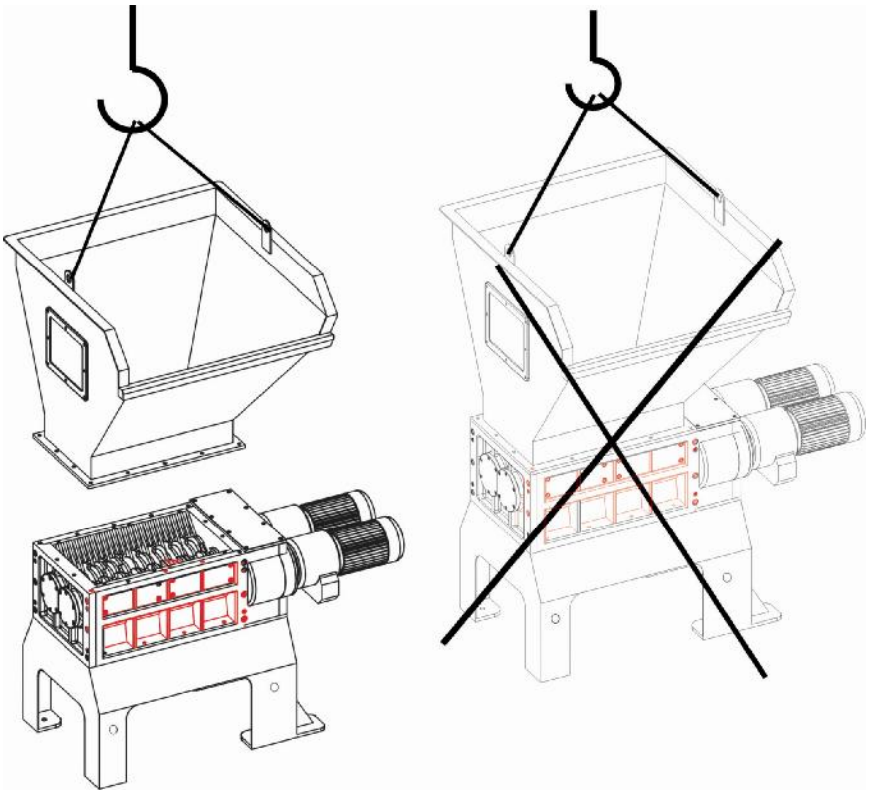
3.2 Installation Positions

 Please use correct lifting method!

Feed box and granulator body are separately packaged when the machine leaves the factory. Use forklift to move the granulator body to

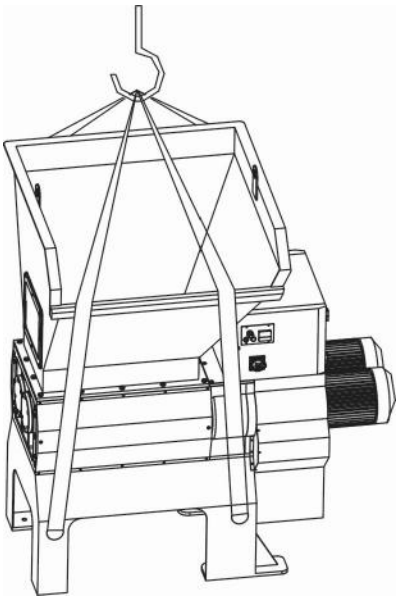
suitable position before install feed box on granulator body and then lock tightly its installation screws.

No lifting the machine while installing the feed box on granulator body and overweight will damage the machine!



Picture 3-1: Installation Positions 1

Machine weight shall be taken into consideration while lifting it and please try to maintain its horizontal and vertical state to avoid tilting.



Picture 3-2: Installation Positions 2

Please assure of enough installation space in peripheral area of the machine for the convenience of machine maintenance and repair.

Please inspect and confirm the level installation ground and its full strength for machine's operation.

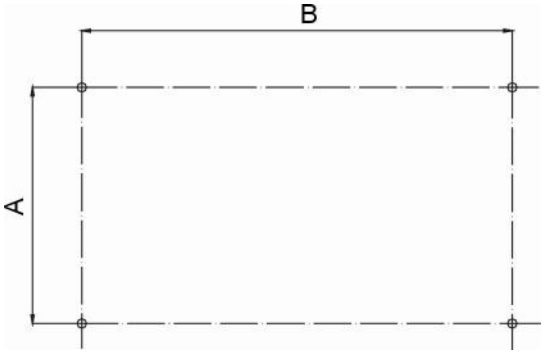
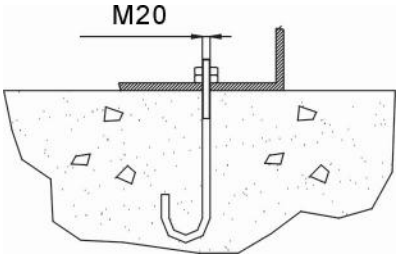


Table 3-2: List of Anchor Hole Dimension

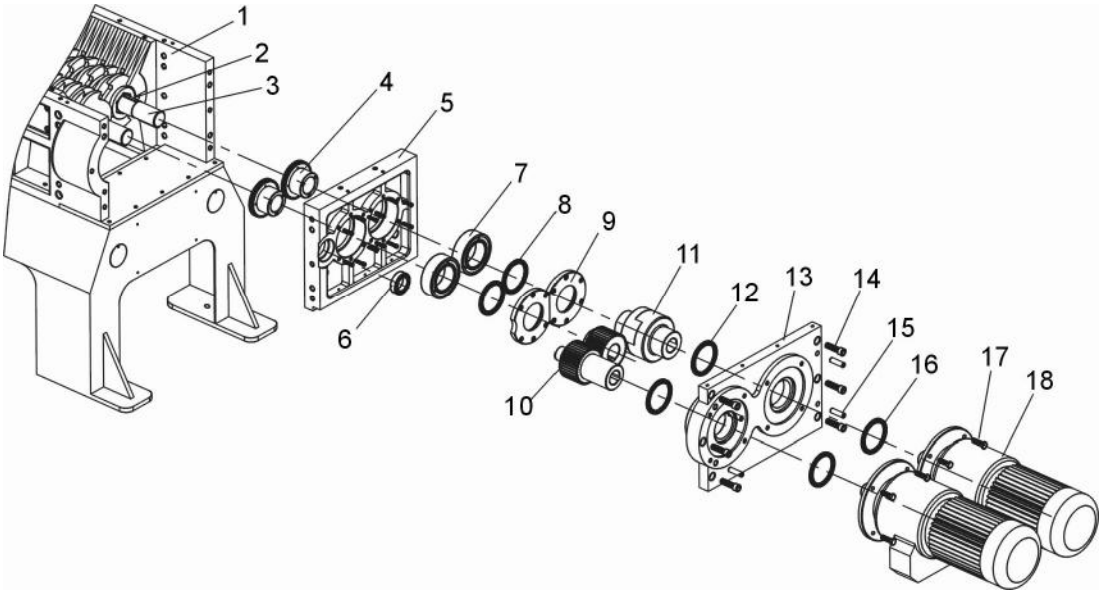
Machine model number	A	B
SGS-6090-D	760	1100
SGS-60120-D	760	1388

Please refer to the fixing method in before look for foot hole position to reserve stone bolt according to the machine model number you select in "List of anchor hole dimension".



Picture 3-3: Installation Positions 3

3.3 Installation of Right Bearing and Motor



Parts name:

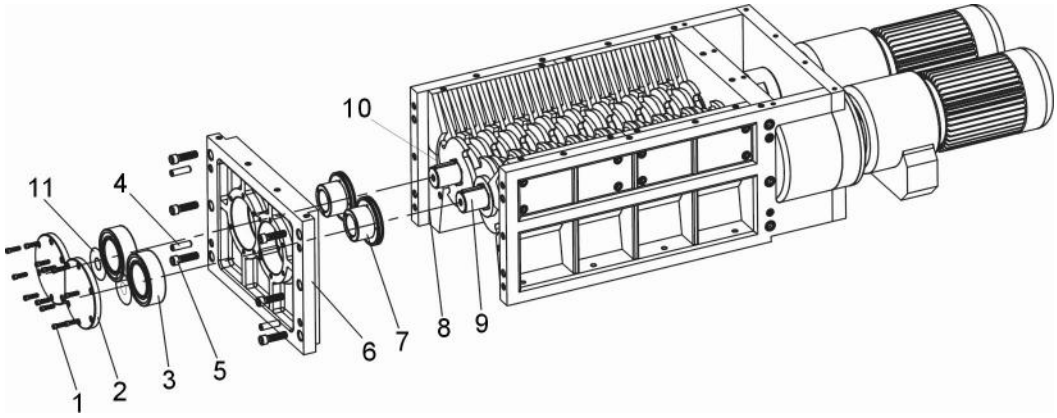
1. Back packing board	2. Button	3. Blade rest axis	4. Bearing holder
5. Middle packing board	6. Bearing	7. Bearing	8. Seal ring
9. Bearing cover	10. Gear pair	11. Shaft coupling	12. Seal ring;
13. Right packing board	14. Internal hex bolts	15. Locating pin	
16. Seal ring	17. Internal hex bolts	18. Motors	

Picture 3-4: Installation of Right Bearing and Motor

Notice!

Lubricate the bearings.

3.4 Installation of Left Bearing



Parts name:

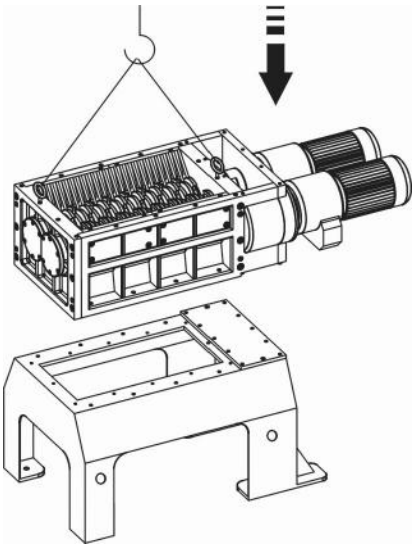
1. Internal hex bolts	2. Bearing cover	3. Bearing
4. Locating pin	5. Internal hex bolts	6. Left packing board
7. Bearing sleeve	8. Back packing board	9. Bearing shaft
10. Key	11. Axis terminal straining ring	

Picture 3-5: Installation of Left Bearing

1) Install bearing sleeve 7 on bearing shaft 9 and install key 10.
2) Install left packing board 6 on back packing board 8, justify position and knock in locating pin 4 and lock tightly internal hex bolts 5.
3) Install bearing 3 on bearing sleeve 7.
   Notice: lubricate the bearings
4) Install bearing cover 2 and use internal hex bolts 1 to lock it tightly.

3.5 Installation of Crushing Chamber

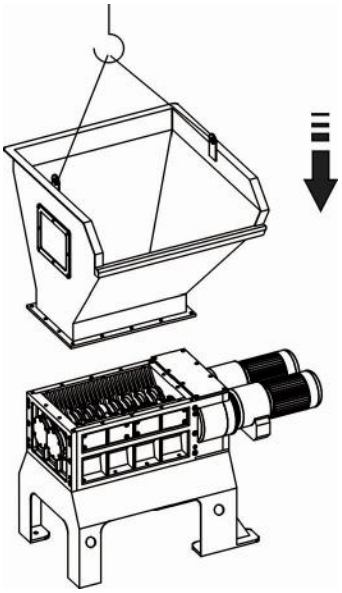
1) Clear away litters and dusts on contact face between base and crushing chamber.
2) Lift up crushing chamber and lay it on top of base carefully to make it match well with the base and justify with its fixing holes.
3) Lock tightly the fixing bolts of crushing chamber (M16 × 70).



Picture 3-6: Installation of Crushing Chamber

3.6 Installation of Feed Hopper

1) Clear away litters and dusts on contact face between feed hopper and crushing chamber.
2) Lift up feed hopper and lay it on top of crushing chamber carefully to make it match well with crushing chamber and justify with its fixing holes.
3) Lock tightly the external hex bolts of feed hopper. (M16 ×70)

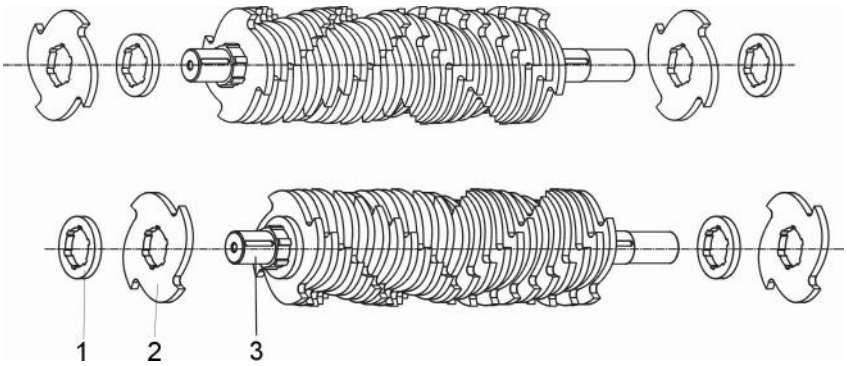


Picture 3-7: Installation of Feed Hopper

3.7 Installation and Replacement of Blades

Blades are extremely sharp and please put on gloves before installation and please be very careful to avoid cut during the installation.

3.7.1 Installation of Blades



Parts name:

1. Blade sleeve 2. Blade 3. Bearing shaft

Picture 3-8: Installation of Blades

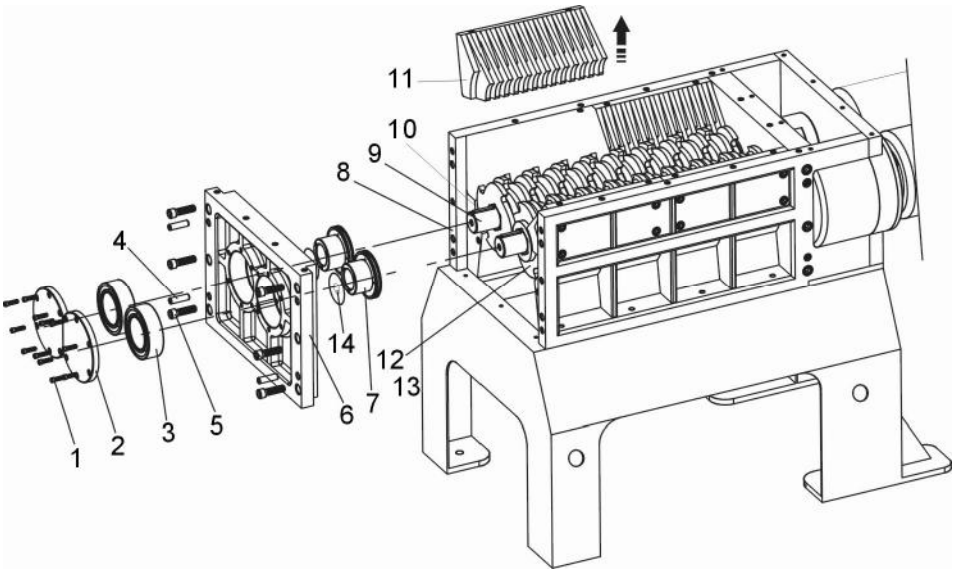
Notice!

Bilateral interval between two blades on two blade rests is 0.3mm!

Notice!

Installation angle of two blades is 15°!

3.7.2 Replacement of Blades



Parts name:

1. Internal hex bolts	2. Bearing cover	3. Bearing4. Locating pin
5. Internal hex bolts	6. Left packing board	7. Bearing sleeve
8. Back packing board	9. Blade shaft	10. Key
11. Barrier plate	12. Blade	13. Blade sleeve
14. Axis terminal straining ring		

Picture 3-9: Replacement of Blades

1) Dismantle 3 Bearing, 6 Left packing board and 7 Bearing sleeve.
2) Lift up 11 Barrier plate in front and at back and take out 11 Barrier plate in front and at back.
3) Take out 12 Blade and 13 Blade sleeve for replacement.
4) Install Barrier plate \ Bearing sleeve and Bearing in opposite order.

Notice!
Lubricate the bearings!

3.8 Power Connection

Power connection of granulator must be accomplished by professional electricians!

Installation notices:

1) Please ensure that the voltage and frequency match with those marked on name plate provided by the plant.
2) Connection of cables and ground wires shall accord with local regulations.
3) Please use independent cables and power switches and the diameter of cables shall not be less than that of cables applied in electric cabinet.
4) Cable terminals shall be safe and fixed.
5) This series of machine requires three-phase four-wire power supply. Power supply (L1, L2, L3) connects with live conductor and ground wire (PE).
6) Power distribution requirement:
   Main power supply voltage: ±10%
   Main power supply frequency: ±2%

Inspect operation direction of motor:

1) Confirm main power switch is "ON".
2) Check up if emergency switch acts.
3) Start granulator by pressing the button of "Start"; then shut it down immediately by pressing the button of "Stop".
4) Granulator needs some time for full stop and examine if the operation direction of the motor is counterclockwise direction then.

Notice!

If the operation direction of the motor is incorrect, it is liable to damage the blades. At the same time, it will also largely reduce the machine's crushing capability! Please cut off power supply and change any two of the three connection wires of the main power supply.

4. Operation Guide

Please put on ear shield while operating the machine in order to avoid human injury!

Please put on gloves while operating the machine in order to avoid human injury!

Please put on protective glass while operating the machine in order to avoid human injury!

Please inspect whether the blades or rotators are loosened before operate the machine:

1) If any damage exists in blades.
2) Pull or push rotators and blades to examine if they are loosened.

Please contact local sale company or SHINI company if users find out any of the above-mentioned situations.

4.1 Starting-up Pre-inspection

Rust preventing oil has been painted on parts without any paint when the machine leaves the factory and clear away rust preventing oil carefully while using this machine.

1) Clean it with cleaning rag first.
2) Then clean it with cleaning rag by amyl alcohol.

4.1.1 Before First Starting-up

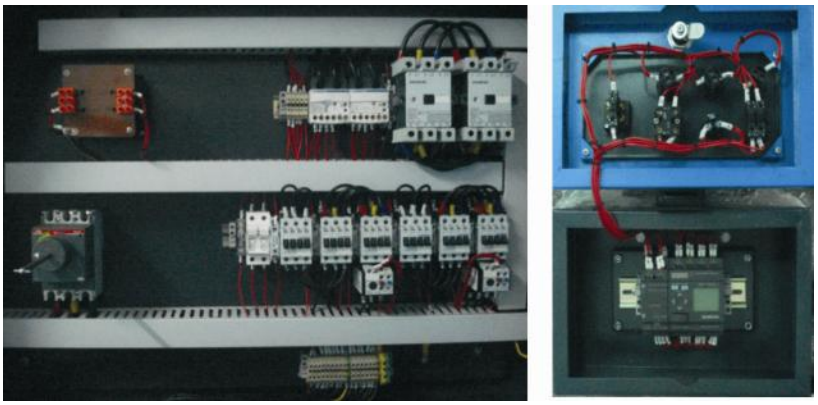
1) Inspect if the granulator is in level condition.

Notice: Justify the machine and make its four supports share its weight in level condition.

2) Inspect blade interval (0.2~0.35mm).

4.2 Circuit Connection

Circuit installation of granulator shall be accomplished by professional electricians.



Picture 4-1: Circuit Connection

4.2.1 Inspect the Operation Direction of Motor

1) Confirm main power switch is "ON".
2) Check up if emergency switch acts.
3) Start granulator by pressing the button of "Start"; then shut it down immediately by pressing the button of "Stop".
4) Granulator needs some time for full stop and examine if the operation direction of the motor is counterclockwise direction then.

Notice!

If the operation direction of the motor is incorrect, it is liable to damage the blades. At the same time, it will also largely reduce the machine's crushing capability! Please cut off power supply and change any two of the three connection wires of the main power supply.

4.3 Remove Feed Hopper

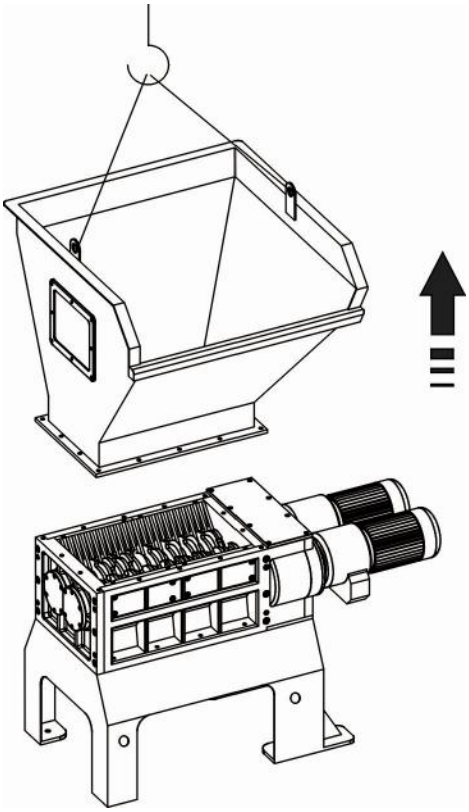
It is a must to turn off main switch and power switch on granulator before remove feed hopper.

Careful!

Blades are sharp and they are liable to cause human injury.

4.3.1 Remove Feed Hopper

1) Inspect if the feed hopper is empty before shut down the main power supply.
2) Loosen the fixing bolts (M16×70) on feed hopper and lift up the feed hopper



Picture 4-2: Remove Feed Hopper

4.4 Turn On and Off the Machine

Granulator is controlled by main power switch, safety switch, "Start / Stop" button and "emergency switch".

Main power switch:

Main power switch of granulator is installed on control cabinet and turning on/off the machine is controlled by main power switch.

Picture 4-3: Main Power Switch

Stop / start button of main power switch:

There is also stop and start button on the granulator, and the starting and stoppage of the machine is controlled by this button.

Emergency Button:

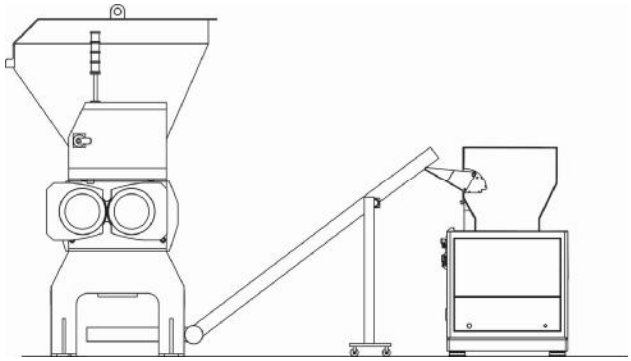
Furthermore, an emergency button is also designed for this machine. Press this button if any accident or other situations, which require an emergent stoppage of the machine.

Picture 4-4: Stop / Start Button, Emergency Button

Notice!

No stopping the machine before materials in feed hopper and crushing chamber has been crushed. Otherwise, the residuals inside might block rotators, which will cause motor overload and tripping operation when users turn on it next time.

4.5 Cooperative Application with Granulator



Picture 4-5: Cooperative Application with Granulator

Standard two-time crushing is accomplished by the cooperative work of SGS-60 series of granulator and SG series of sound-proof centralized granulator of our company and the conveyor equipped with barrier plates will solve the problem of recycling the pieces for clients.

4.6 Reverse Protection Function for Motor

Motor will automatically rotate in reverse way when it is overloaded caused by crushing hard materials or other reasons. At the same time, it will sound reverse alarm, which lasts for 3 seconds. Then motor starts rotating in positive way and continues to crush the materials. Alarming is removed after motor starts rotating in positive way. Motor will stop running if it fails to run normally after 3 times of reverse rotation. Users shall press the button of "Stop" to turn off the power supply and then press the button of "Start" to restart the machine.

Motor will run as the following when motor seized during the work:

Motor seizure, automatic stop of machine for 1 second→reverse rotation for 3 seconds→stop for 1 second→rotate in positive way→

A. 1) Normal→work
   2) Seized→stop for 1 second→reverse rotation for 3 seconds→stop for 1 second→rotate in positive way.

B. 1) Normal→work
   2) Seized→stop for 1 second→reverse rotation for 3 seconds→stop for 1 second→rotate in positive way.

C. 1) Normal→work
   2) Seized→stop of machine

Please do not modify any of parameters in order to protect the motor.

5. Trouble-shooting

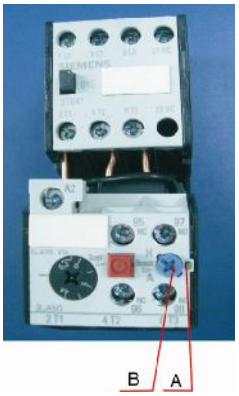
5.1 Granulator Fails to Run

Check up if emergency switch is reset and rotate the button along arrow direction (counterclockwise direction) to reset it.

NO.	Fault	Potential reasons	Resolution
1	System is not started after turn on main power switch and press 'Start" button.	1) Fail to connect with power supply. 2) Emergency switch is not reset. 3) Main power switch is damaged. 4) Breaker is not closed or it is damaged. 5) Power supply circuit fault. 6) Blowout of control circuit. 7) Damage of control transformer. 8) Safety switch is loosened. 9) Tripping operation of thermal overload relay.	1) Connect with power. 2) Reset emergency button. Rotate the button along arrow direction. 3) Change power switch. 4) Inspect breaker and replace damaged breaker. 5) Inspect power circuit. 6) Change safety wire after inspect power circuit. 7) Change transformer. 8) Inspect safety switch. 9) Reset thermal overload relay.
2	Motor buzzes abnormally after turn on main power switch and press "Start" button.	1) Over low voltage. 2) Power phase deficiency. 3) Motor seized. 4) Motor fault.	1) Inspect power supply. 2) Inspect power supply. 3) Inspect crushing chamber. 4) Inspect motor.
3	System automatically stops abruptly during the starting and operating process.	1) Damage of contactor.	1) Inspect／replace contactor .
4	System automatically stops abruptly during the operating process.	1) Overload crushing motor. 2) Too high power voltage Pulsation.	1) Inspect crushing motor and relevant parts. 2) Improve power supply quality.

5.2 Check Up Motor Overload Protective Device

Motor is equipped with motor overload protective device in electric control cabinet and stripping operation will happen if motor is overloaded. Tripping (A) green pole is pushed out and press "Reset" button (B) to reset it. It is necessary to inspect if there is raw materials in granulator if users want to turn it on for second time.



5.3 Check Up Gaps Among Blades

If blades are very blunt or gaps among blades are not correct, it will stop the machine and tripping operation will happen to motor overload protective device.

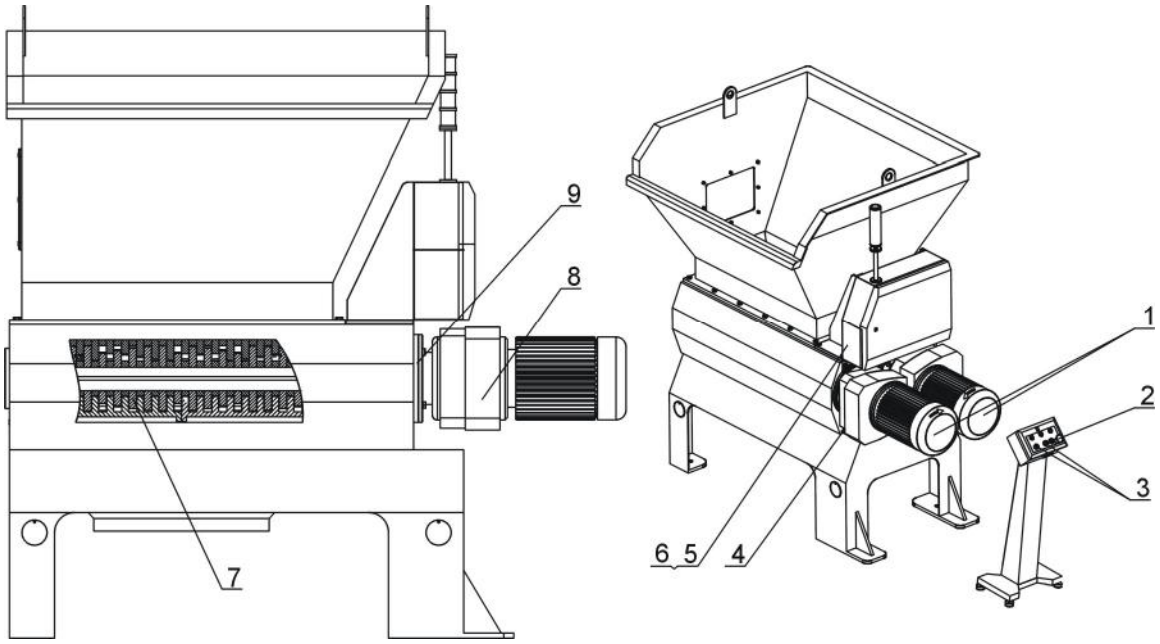
5.4 Stoppage For Other Reasons

Connection of safety switch or limit switch is damaged or loosened might also stop the machine.

Notice!

No cutting off safety switch or control switch.

6. Maintenance and Repair



1. Check whether the rotation direction of the blades shaft is the same with the arrow on the machine. Period: Daily.
2. Check whether the emergency-stop button is normal. Period: Daily.
3. Check whether the start/ stop button is normal. Period: Daily.
4. Check the safety switch. Period: Daily.
5. Check whether the electrical elements in the cabinet are fastened. Period: Weekly.
6. Check the wear condition of the power line. Period: Weekly.
7. Check the wear condition of the blades. Period: Monthly.
8. Regularly replace the gear oil of the two gear motors. Period: Semiyearly.
9. Regularly refill the gear box with new oil. Period: Semiyearly.

6.1 Repair

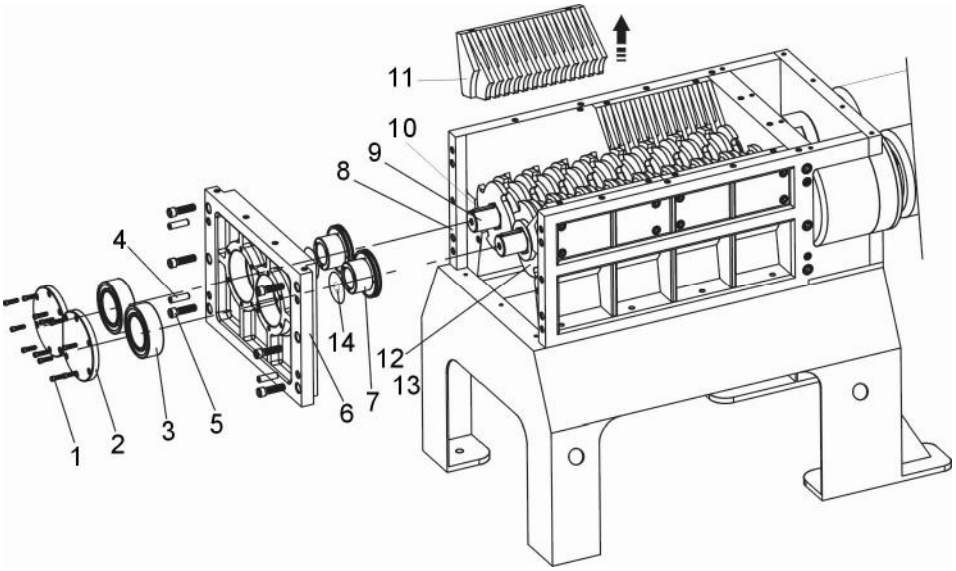
All maintenance work must be finished by professional personnel in order to avoid human injury and machine damage.

6.1.1 Replacement of Blades

Users must press emergency switch and turn off main power switch

while replacing the blades!

Blades are extremely sharp. Please put on gloves before operation and please be very careful during operation to avoid cut.



Parts name:

1. Internal hex bolts	2. Bearing cover	3. Bearing	4. Locating pin;
5. Internal hex bolts	6. Left packing board	7. Bearing sleeve	
8. Back packing board	8. Bearing shaft	10. Key	11. Barrier plate;
12. Blade	13. Blade sleeve		

Picture 6-1: Replacement of Blades

1) Dismantle 3 Bearing, 6 Left packing board and 7 Bearing sleeve.
2) Lift up 11 Barrier plate in front and at back and take out 11 Barrier plate in front and at back.
3) Take out 12 Blade and 13 Blade sleeve for replacement.
4) Install Barrier plate, bearing sleeve and bearing in opposite order.

Notice!

Lubricate the bearings.

6.2 Maintenance

Please make sure that there is no raw material in the granulator while executing

maintenance.

 Notice!

All maintenance work must be finished by professional personnel in order to avoid human injury and machine damage.

6.2.1 Daily Inspection

1) Whether or not the race rotation of two bearings is normal and shut down machine immediately for inspection if anything abnormal happens.
2) Inspect if the function of emergency switch is normal and stop the machine immediately after turn on the machine. Rotate the button along the arrow direction, namely, counterclockwise direction, to reset it.

6.2.2 Weekly Inspection

1) Inspect if there is skin off or damage of wires. Please replace it immediately if there is any damage to avoid human injury caused by electric leak.
2) Inspect security switch.

6.2.3 Monthly Inspection

1) Inspect if blades and their fixing screws are loosened.
2) Add new grease to gears in gear case every 6 months. The brand of gear grease is: H/T05341993, extreme pressure complex lithium-base grease lubricant (Foreign clients: Mobil grease FM102) and dropping point shall not be less than 240.
3) Replace for new grease for the two reducing motor gear boxes every 6 months with the brand of SH/T00941991LCKE/P heavy-loaded gear oil (Foreign clients: 600W Cylinder Oil).

6.3 Cleaning Up

 Please be careful of not touching blades while dismantling feed hopper, which is extremely sharp and liable to cause human injury.

6.3.1 Notices

1) It is a must to shut down main power switch.
2) Try not to dismantle feed hopper for cleaning work. Please be careful of not touching blades while dismantling feed hopper for cleaning, which might

damage the blades or even fracture them.

6.3.2 Cleaning up the Entire Machine

1) Clear away all residues in crushing chamber.
2) Open electric control cabinet's cover and use dry-air blower to clear away all dusts on electric components.
3) Clear away all dusts on machine body outside.

6.4 Maintenance Schedule

6.4.1 About the Machine

Model _____ SN _____ Manufacture date _____

Voltage_____Φ_____V Frequency _____ Hz Power _____ kW

6.4.2 Check after Installation

☐Inspect if fixing screws in the base is locked tightly

☐Inspect gaps between stationary blade and rotating blades (0.2~0.35mm)

Electrical Installation

☐Voltage: _____ V_____ Hz

☐Specs of the fuse: 1 Phase _____ A 3 Phase _____ A

☐Inspection of power phase sequence

6.4.3 Daily Check

☐Check main power switch.
☐Check emergency stop button.
☐Check start / stop button.
☐Check material check plate (strip) is perfect or not.
☐Inspect motor overload protection function
☐Inspect motor forward and opposite rotation functions
☐Check whether emergency stop and safety switch works normally.
☐Clean screen and feeding hooper.
☐Check whether start, stop and power switches are normal.

6.4.4 Weekly Check

☐Check all the electrical cables.
☐Check if there are loose connections of electrical components.
☐Inspect reduction gear's lubricant
☐Inspect wear condition of blades
☐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

6.4.5 Monthly Check

☐Check the status of the belt.

- ☐ Inspect wear condition of blades
- ☐ Inspect lubrication of gears
- ☐ Inspect lubrication of bearings
- ☐ Check whether clamp ring of pulley is fastened.
- ☐ Check belt tension.

6.4.6 3 year Checking

- ☐ PC board renewal.
- ☐ No fuse breaker renewal.