

# KERUNDE SLHSJ SERIES

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## Double-shaft Paddle Mixer

### Operation Manual

Note: Prior to operation, please read over this operation manual carefully and keep it properly for future reference.



YANGZHOU KERUNDE MACHINERY CO.,LTD.

Congratulations, you have selected Kerunde Brand SLHSJ series double-shaft paddle mixer. This mixer can widely applied to mix powder, granular, flaky, blocky, sticky and miscellaneous materials in feed, grain, food, chemical, pharmaceutical and pesticide industries. Prior to application, please read over the operation manual and well know the safety points, different performances, requirements to installation and operation etc. of this mixer, so that you can expertly operate and use this machine, and create more benefits for you.

## **Important Explanations**

### **Documents**

The operating instruction is specially compiled for your working personnel responsible for operation and management of the equipment manufactured by Yangzhou Kerunde Machinery Co., Ltd. Please deliver these documents to the personnel concerned.

If the contents of this Operation Manual and specifications of this product are to be changed, we would not notify of them further. Yangzhou Kerunde Machinery Co., Ltd. will reserve the right to modify the specifications of this product and the contents in this Operation Manual.

### **Measures for delivery taking**

Once the machine arrives, make a visual inspection immediately. If there is any damage caused during transport, take necessary procedures to claim for compensation according to the supply contract. The repair expense should be borne by the risk undertaker concerned.

### **Storage**

The machine and equipment that can't be installed at predetermined site immediately must be stored with the original packing in a place where is weatherproof and free of any other external damage. The storage loss can only be handled in light of the supply contract.

### **Installation**

Only specially trained technical personnel are allowed to install the machine and machine parts produced by Yangzhou Kerunde Machinery Co., Ltd. according to various installation specifications attached.

### **Equipment structure**

If several machine structures are involved in the documents provided, only the one stated in the supply contract is effective. We reserve the right to make improvements prior to delivery.

### **Start-up and commissioning**

Start-up and commissioning work can only be conducted by specially trained technical personnel. Before the initial start-up, operators must be familiar with all instructions and operation rules stated in the documents provided by us. And it is a must to fill lubricant like speed variator oil prior to the initial start-up.

### **Accident precautions**

Relevant accident precaution regulations in the documents provided by us must be carefully studied and observed. Yangzhou Kerunde Machinery Co., Ltd. makes every effort to manufacture equipment according to the latest Chinese national safety standard and European safety standard (or the CE standard), and customers must tell us the local safety regulations prior to our production. And the extra cost resulted here from should be borne by the customer.

### **Maintenance/cleaning work**

Maintenance can only be carried out by professionals, and they should know well in advance the regulations in the documents provided by us. These regulations are favourable for keeping the machine and equipment intact, reducing abrasive wear and prolonging the service life. Cleaning work must be carried out according to legal regulations as well as the instructions in our documents.

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### **Quality guarantee**

We are only responsible for quality guarantee stated in the contract. The precondition is: what is used is the authentic equipment made by Yangzhou Kerunde Machinery Co., Ltd. We are not responsible for any loss resulted by using the spare parts produced by other manufacturers. We are not responsible for compensation of any loss caused by improper operation or breach of the operation regulations, or incorrect operations by non-professional personnel.

### **Educational obligation**

The enterprise leaders who own the machines and equipment produced by Yangzhou Kerunde Machinery Co., Ltd. have the duty to enable the machine operators to be familiar with these operating instructions and emphasis them where the especial danger is during operation of these machines.

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# **1 Personal protection: Countermeasures against accidents**

1.1 All the mechanical equipments produced by Yangzhou Kerunde Machinery Co., Ltd. are equipped with safety devices, which are consistent with modern technical level and universally effective safety rules before they leave the factory, so that the customers can use the machines in accordance with the regulations.

1.2 Enterprises are obligate to execute following regulations to guarantee operators' safety.

1.3 The shield cap of a coupling must keep mounted and closed at any moment. It is very dangerous to personal safety, if they are open or disassembled. This point is also applicable for the preventive device of a manipulator.

1.4 The safety limit switch, chain-cylinder, solenoid valve and locking electromagnet of the door interlock device should always be kept in good order. The safety limit switch may not be overlapped or discarded.

1.5 The grating cover plate, grid bar or guard grating are usually installed and delivered together with the machine. They can only be disassembled with tools. And the machines with such kind of devices can never put into work until the above-said devices have been properly installed.

1.6 The driving motor must be switched off completely when carrying out inspection, commissioning, repair and maintenance. This can be realized through a full-phase separating and lockable switch installed near the machine or on the operation desk and control panel on the site. It is not enough only to screw off the fuse wire!

1.7 If the machines need other energy like pneumatic, hydraulic, steam and hot water energy, it is necessary to cut off their energy supply or turn off the switch, and eliminate the pressure in the internal pipeline system of the machine.

1.8 As for handling heated or cooled parts and components of the machine, especial care should still be taken for the danger of burning possibility.

1.9 If you have pressed the emergency stop switch to stop the machine and you want to reset the switch, so it is not permissible to only re-press this button to restart the machine. And the machine can only be started by re-closing the master switch first.

1.10 If some machines are equipped with a local shutdown system, especial care should be taken. Read carefully the instruction manuals attached to the machine delivered. In such machines with a local shutdown system, temperature will rise because pressure or vacuum will occur after they have been used for a period.

1.11 If the operators employed cannot read or write, the owner has the duty to explain to them clearly where dangers exist and warn them that special attention should be paid.

1.12 The cleaning, lubricating and oiling of the machine or its parts and components may be carried out only when the machine is stopped. If you must climb on or enter the machine to do such work, the mandatory provisions shall be made without exception: the power supply of motors must be cut off completely and the switch must be locked!

1.13 Be careful, sampling from inside the machine can never be carried out unless there is no any danger. Usually, the samples can be taken from the pipe under the machine instead of inside machine.

1.14 Clear off the deposited dust, dirties and materials frequently. Keeping the machine clean can enhance production safety and the cleaning level of workshop, and is also beneficial to dust explosion prevention.

1.15 If oil (grease) leakage occurs, clean it immediately and seal well the place where leakage occurs, for oil or grease leaked on the floor will easily bring about hazards to the operator.

1.16 In production operation, the machine must be equipped with safety devices, which may be neither removed and abandoned nor reduced in functions. Otherwise, we are not responsible for any accidents resulted here from, and reserve the right to ascertain where the responsibility lies.

1.17 Please execute the special regulations on accidents prevention in the operating instructions provided by us.

1.18 Only the trained professionals are allowed to operate the machine and equipment manufactured by Kerunde.

1.19 Measures for environmental protection

If you decide not to use the machine any longer, the measures for environmental protection and reutilization should be taken: drain the liquids inside the machine (like

motor oil, gearbox oil, brake oil and coolant etc.) into special containers and send them to the preparation workshop. The special waste (such as battery) shall be treated in line with the regulations. The plastic parts shall be picked out for reutilization. The metal parts shall be sorted out so as to be crushed or scraped.

## **2 Explosion protection: countermeasures against dust explosion and fire hazard**

### **2.1 Common cleaning work**

2.1.1 Keeping the jobsite with combustible dust clean is an important condition for safe production.

2.1.2 Try not to pile bagged or bulk materials between machines.

2.1.3 In order to reduce dust emission to surrounding areas, all conveying devices, cyclone separators and dust collectors should be kept in good condition. Especially, the unsealing phenomena of pipes or top covers should be avoided.

2.1.4 Cleaning dust everywhere frequently and effectively to reduce dust explosion hazard.

2.1.5 Keep all motors free of deposited dust.

### **2.2 Routine inspection and maintenance**

2.2.1 Regularly check the driving condition of all v-belts and flat belts, at least once a week, in order to avoid heat generation caused by belt slipping.

2.2.2 Regularly check the safety devices such as speed monitor or the like, at least once a week.

2.2.3 Check and clean all the magnetic separators, stoners and screening machine, at least once a day.

2.2.4 In order to avoid heat generation, it is necessary to regularly check the functions of all main shafts and bearings, at least once a week, and to regularly carry out lubricating.

### **2.3 Electric apparatus**

2.3.1 Regularly check the electric apparatus and articles, and special attention should be paid to the following points:

a. It is forbidden to use any flashlights and other lamps without shielding or

explosion-proof glass.

b. It is forbidden to use any lengthened cable or electric furnace.

c. It is necessary to immediately repair or replace the electric devices and equipment if any failure occurs.

d. The cables without conduits are not allowed to be installed on the floor.

e. Cut off power supply of the machine when going off work.

f. An electrician should be assigned to check the insulation of all the lines of electric network according to relevant regulations on heavy current, at least once a year.

## **2.4 Smoking and welding**

2.4.1 Smoking is prohibited, which is applicable to all workers and staff of the enterprise as well as guests, customers, foreigners and drivers visiting the factory.

2.4.2 If the tools such as welding machine or soldering lamp etc. are required for repair or installation, do as best as possible to arrange the work in a special workshop or on a special site.

2.4.3 If it is necessary to carry out welding or the like directly in production area or storehouse once in a while, written applications must be submitted to a related supervisor in advance for written approval. The above mentioned operations can be carried out only when special safety measures have been taken, such as laying pieces of water soaked canvas or canvas special for covering on the surrounding area and preparing fire extinguishers. After completion of the operation, the welding site and the surrounding area are to be monitored at least for 10h. The gas cutting sparks are very dangerous, for people can't see where they will fly on earth. They can cross through the narrow clearance of walls and drop downstairs or to the next rooms, or even fly off 10 m away in distance. If the sparks drop in dusts, fire accidents may occur at any time.

2.4.4 Welding is prohibited on a running conveyor. If the welding work is necessary, shut down the machine first, and then make a thorough cleaning and isolate both sides of the welding site tightly with materials like mineral wool to avoid connecting with other conveying devices, silos or tanks. If the work is to be done on the chutes or conveying pipes, it is necessary to disassemble them or divert their lower ends and seal them to avoid welding sparks entering the conveying pipes or silos.



## **2.5 Effect of static electricity**

In order to ensure the safety of electric circuits and avoid explosion resulted from spark discharge, the paint coat at the electric connections must be removed.

## **3 General**

### **3.1 Application and adaptability**

SLHSJ series double-shaft paddle mixer is widely used for mixing powdery, granular, flaky, blocky, sticky and miscellaneous materials in feed, cereal, food, chemicals, pharmaceutical and pesticide industries.

### **3.2 Features of the machine**

3.2.1 Short mixing period and high mixing homogeneity: For common materials the mixing homogeneity can reach  $CV \leq 5\%$  within 45s~60s, thus shortening mixing time and greatly improving the production efficiency of the feed mill;

3.2.2 No mixture segregation: After homogenous mixing, the mixture will not be graded in further mixing, therefore segregation due to the great difference in specific gravity or granularity of materials will not occur, resulting in a mixture with high accuracy;

3.2.3 Fast discharging and low residue: The full-bottom double-leaf discharge gate features fast discharging with little residues;

3.2.4 Great amount of liquid addition: Several kinds of liquid can be added according to demands;

3.2.5 With gentle mixing action, it can also be used for drying or cooling: The mixing action is so gentle and free of damage to the original properties of materials that it can be used for drying or cooling through adding a hot or cold air;

3.2.6 Three-row chains or two-row chains are used for the sprocket & chain system, and two rotors rotating in opposite directions driven by a cycloid reducer, featuring unique driving mechanism, smooth running, high torque and low abrasion;

3.2.7 An unique chain tensioning structure is adopted, of easy assembly, quick disassembly and convenient adjustment;

3.2.8 The unique W-shaped trough structure with small opening, big middle part and

narrow lower part make the machine fine and unique shape and appearance with small space required and reduced residue;

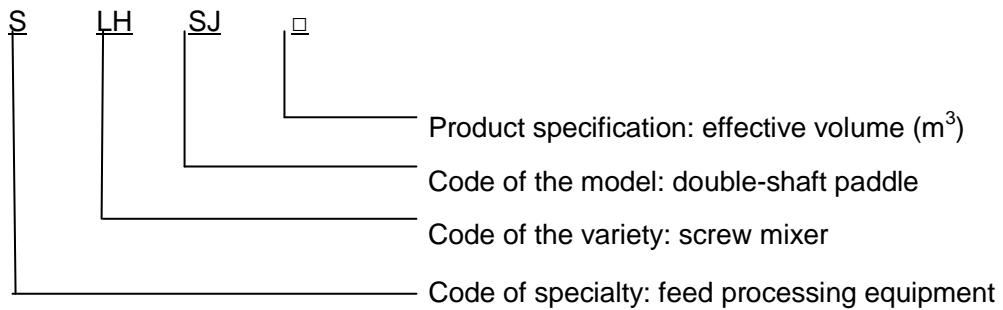
3.2.9 As our mature technology, the discharge gate sealing mechanism adopted improves the reliability of sealing.

### 3.3 Working condition

3.3.1 Working in ambient temperature and pressure;

3.3.2 Upstream and downstream equipment should be matched with the mixer technologically.

### 3.4 Composition of the model and its meaning



## 4 Main technical parameters

Item Model	Working volume (m <sup>3</sup> )	Capacity/batch (kg)	Mixing time/batch (S)	CV (≤%)	Power (kW)	Weight (kg)
SLHSJ8	8	4000	45-60 (based on different materials)	5	45+1.5	8800
SLHSJ7	7	3000		5	45	8650
SLHSJ4	4	2000		5	30	6720
SLHSJ3	3	1500		5	22	5600
SLHSJ2	2	1000		5	18.5	5180
SLHSJ1	1	500		5	11	2420

## 5 Working principle and structural feature

### 5.1 Overall structure

Schematic diagram for structure of the complete machine is shown in Fig. 1.

### 5.2 Working principle

The machine consists of two rotors rotating in opposite directions, and the rotors are welded with multiple paddles in special angles. The paddles bring about materials rotating along the internal walls of the chamber counterclockwise and at the same time make the materials turn over both leftward and rightward. A weight-loss zone is formed at the crossing and overlapping position between the two rotors, in which whatever shape, size and density of the materials may be, they will be floated upward and instantly in a weight losing state. Thus all the materials in the chamber are turned over continuously and circularly, and interlaced and sheared each other, so as to reach a fast but gentle mixing effect with good homogeneity.

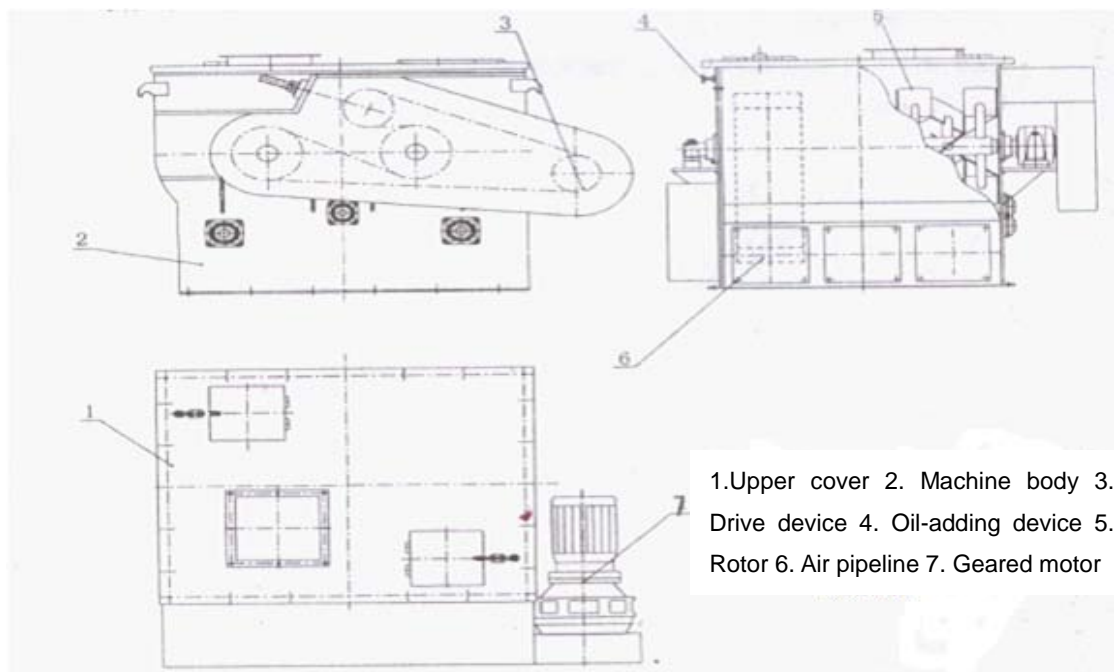


Fig. 1

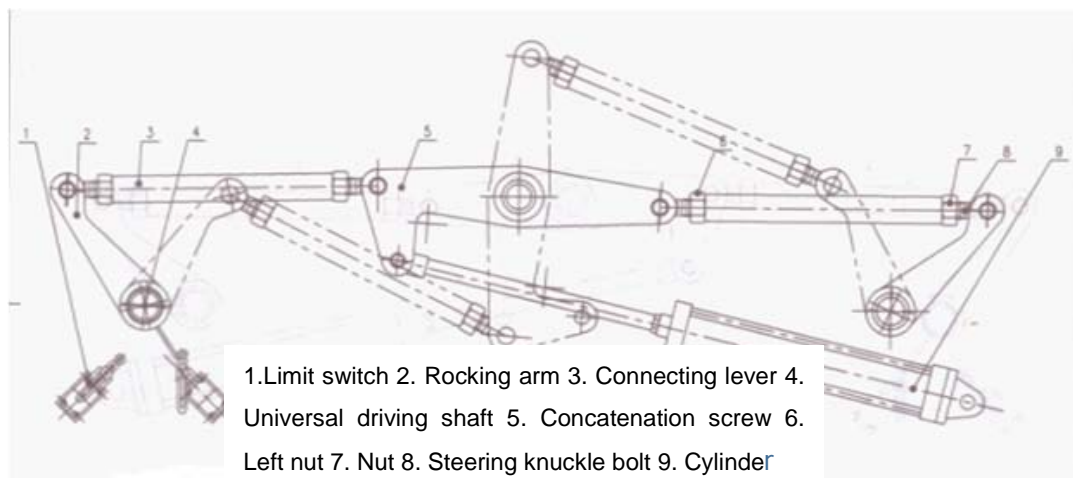
### 5.3 Structure of main components

#### 5.3.1 The discharge gate with pneumatic control or electric control

5.3.1.1 The pneumatic control of the discharge gate consists of a cylinder, a connecting

lever, an adaptor, a rocking arm, a twin-rocking lever, an universal driving shaft and a limit switch (see Fig. 2). The discharge gate is installed on the universal driving shaft, which is connected with the rocking arm, while the rocking arm is hinged with the connecting lever, and the connecting lever is hinged with the twin-rocking lever. The cylinder makes reciprocating movement and rotates the universal driving shaft through the twin-rocking lever, thus to open or close the two discharge gates at the bottom.

5.3.1.2 The discharge gate with the electric control is controlled by an electric lever, as for the operation of the electric lever, please see its operation manual for details.



**Fig. 2**

### **5.3.2 Sealing of discharge gate**

There are sealing members mounted at two discharge gates and gate frames at lower part of the casing. When the gates are closed, the side surface of the gate body clings tightly to the rubber-sealing strip on the sealing member to avoid material leakage. Damaged or aged sealing strips can be replaced with new ones, if necessary, the length of the connecting lever can be adjusted to keep the gate body tightly cling to the chamber, so as to reach a good sealing effect.

### **5.3.3 Liquid addition**

Liquid addition pipe is installed below the machine cover and consists of pipes and nozzles etc. Liquid is sprayed out in a sector from the nozzles. Several nozzles are evenly distributed on the whole length of the casing. The standard quantity of nozzles for different mixers refers to the table as follows:

Table 1

Model	SLHSJ1	SLHSJ2.4	SLHSJ7.8
Nozzle quantity	8	10	12

Note: SLHSJ 0.1 and SLHSJ 0.06 are not equipped with liquid addition devices.

## 6 Installation and commissioning

### 6.1 Mechanical installation

#### 6.1.1 Scaled drawing of machine (see Fig. 3(2-2), Table 2)

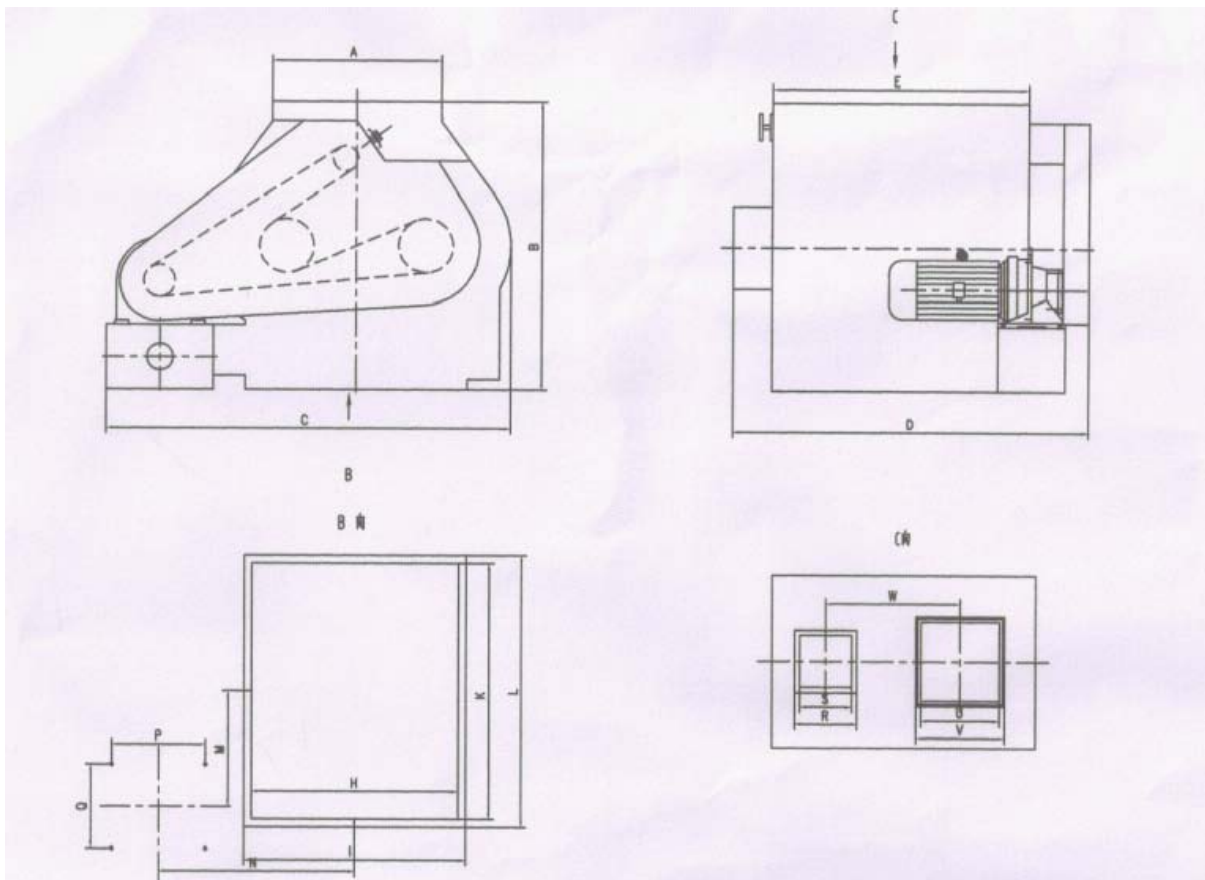


Fig. 3

Table 2

Item \ Model	SLHSJ1	SLHSJ2	SLHSJ4	SLHSJ7	
<b>A</b>	1100	1280	1300	1700	

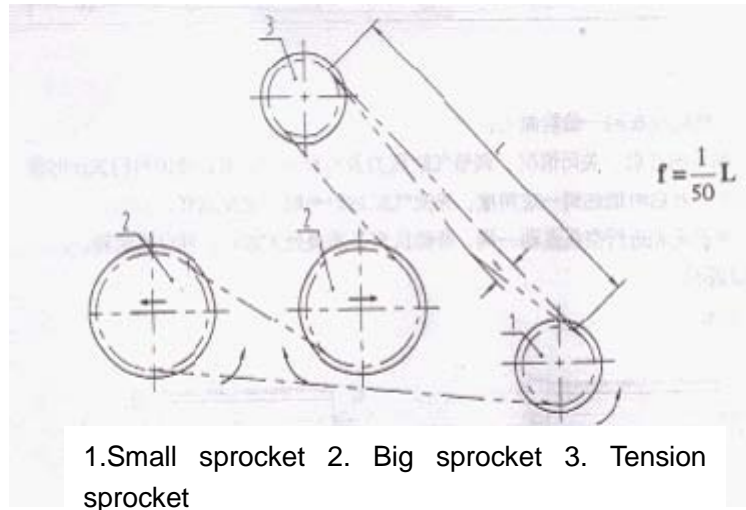
B	1630	2180	2280	2480	
C	2180	2687	3100	3744	
D	1938	2584	2740	3064	
E	1416	1820	1974	2324	
I	1200	1550	1700	1900	
H	1092	1438	1588	1784	
K	1400	1800	1950	2300	
L	1516	1920	2074	2324	
M		1296	935	948	
N		1337	1510	1870	
Q		380	440	660	
P		420	500	800	
R	380×380	480×480	480×480	480×480	
S	300×300	400×400	400×400	400×400	
U	400×400	600×600	600×600	600×600	
V	480×480	680×680	680×680	680×680	
W	300	300	975	1150	

### 6.1.2 Installation requirement

6.1.2.1 The cycloidal reducer is installed on the machine base, which should be connected not only with the mainframe by bolts, but also with foundation bolts firmly, otherwise, the machine will vibrate and even an accident will occur if it vibrates seriously.

6.1.2.2 The directional angle of the two rotors shall be adjusted according to rotating direction of the indicating plates, which are installed at the end surfaces of the two main shafts. The indicating plates at the end surfaces of two big sprockets should be aligned. The take-up sprocket 3 should be turned to the loosest position and then the chain should

be so mounted that the indicating arrows on the sprockets of two main shafts can be in the same horizontal line. The chain should be tensioned properly for smooth driving and rotating in a direction consistent with that shown in Fig.4, and at last the hood shield is to be installed.

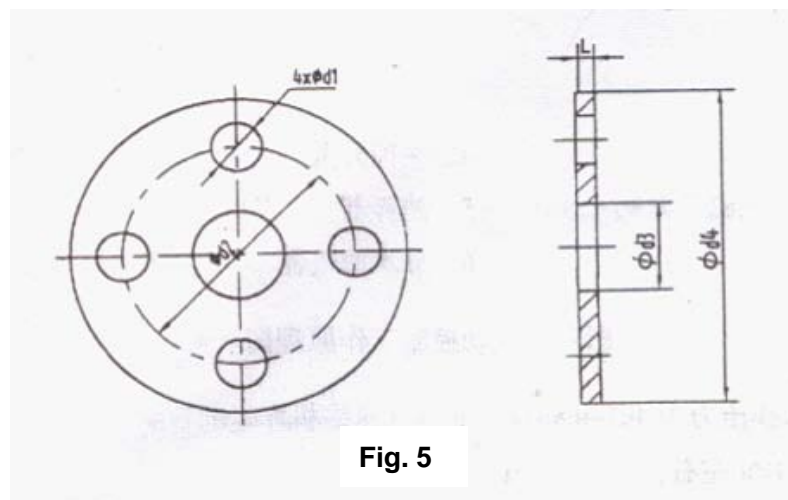


**Fig. 4**

**Note:** The chains of SLHSJ1, SLHSJ2 have been installed already, readjustment is not necessary if they have not been removed.

6.1.2.3 The feeding inlet is jointed with the opening at the top cover according to technological requirement; if there is no special requirement raised, the inlet is already prepared prior to shipping according to the scaled drawing. The bottom is a full-length double-leaf discharge gate, and the opening for discharging to be connected is the flange on the machine casing. A hopper with matched volume should be installed below the machine body.

6.1.2.4 The inlet flange of liquid addition pipeline should be connected with the outlet flange of oil supply system; the dimensions for inlet flange of the pipeline refer to Fig. 5 and Table 3:



**Table 3**

Dimension Model	d1	d2	d3	d4	L
SLHSJ8、7、4、3、2	14	85	35	115	12

### 6.1.3 Adjustment requirements

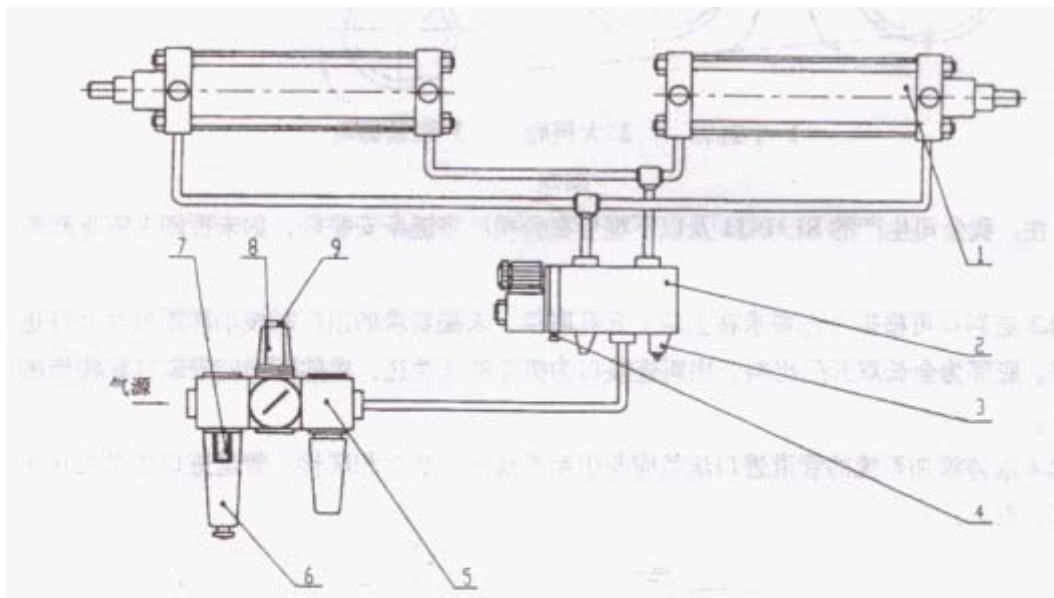
6.1.3.1 Four big and small sprockets should be in the same vertical plane;

6.1.3.1 Check the opening and closing state of the discharge gate, adjust the pressure in the cylinder and the position of limit switches, so that the discharge gate can be leveled off to the casing bottom when it is closed and reach a certain angle when it is opened, and the cylinder can run smoothly with proper speed;

6.1.3.3 Firstly inch the machine idly for a cycle prior to feeding, and then carry out an idle running after no collision and friction at the crossing or overlapping position has been confirmed.

## 6.2 Installation of pneumatic control part

### 6.2.1 Working principle (Fig. 6)



1. Cylinder
2. Two-position five-way solenoid reversal valve
- 3 Throttle
4. Manual switch
5. Oil mist lubricator
6. Moisture trap-filter
7. Filter core
8. Hand wheel
- 9 Brake knob

**Fig. 6 Functional diagram for pneumatic control**



6.2.1.1 Use an air compressor with a rated working pressure of 0.7~0.8 MPa to generate compressed air as the source unit to ensure the cylinder has a working pressure of about 0.6 MPa.

6.2.1.2 Turn on the air source pipeline, check whether the connection of pipes is reliable or not, and then fill proper amount of lubricating oil in oil mist lubricator 5 as required; the type of lubricating oil: turbine oil VG32 or sewing machine oil.

6.2.1.3 Prior to turning on the air source, raise the hand wheel upward and turn the hand wheel 8 on the reducing valve counter-clockwise to make the fixed value spring of the valve unloaded, and then turn on the air source and the hand wheel clockwise to increase the pressure gradually till the required working pressure is indicated in the dial gauge of the manometer, lastly lock the hand wheel 8 tightly by brake knob 9 to ensure the system running under working pressure.

6.2.1.4 When working without load under specified working pressure, allow the cylinder act through the two-position five-way solenoid reversal valve 2 by means of the manual switch 4 to check whether the cylinder and air supply system are in a normal condition or not.

6.2.1.5 For loaded working, first adjust the switch of one-way throttle 3 to control the flow, so that the cylinder piston can make speed adjustment in a wider range.

6.2.1.6 When working with normal load, switch on the solenoid valve to allow the two-position five-way solenoid reversal valve 2 to accept electrical and air signals to change flow direction of compressed air and push the cylinder to act, so as to realize automatic control of pneumatic driving.

6.2.1.7 Check the oil level of oil mist lubricator 5 and the water level of air trap-filter 6 regularly. Supplement oil timely when the oil level is close to the lowest oil level, and drain timely when the water level is close to filter core 7 and close the discharge valve when the water is about to be exhausted; as for new type of water strainer, when air pressure drops to zero, the spring returns to its original position and water is drained automatically after the completion of production.

## **7 Usage and operation**

7.1 Materials can only be fed until the rotor is running normally; Additives should be added in when a half batch of main materials has entered the machine, and oil should not be sprayed until all materials have entered the machine; Materials should be discharged only after a period of mixing.

7.2 When the machine is stopped and not to be used, there should be not any oil remained in the oil adding pipe to avoid pipe blockage due to oil solidification;

7.3 Metal or other large impurities should not be mixed into the material to avoid damages to rotors and paddles;

7.4 The speed reducer, cylinder and auxiliary elements should be used in accordance with the relevant stipulations in their operating instruction manuals;

7.5 After several hours' operation the chain should be tensioned as properly as the tensioning degree shown in Fig. 4 (reference size:  $f=L/50$ ), and check other fasteners.

7.6 The machine should not run with an overload to avoid breakage of the main shaft.

## **8 Safety**

### **8.1 Safety Points**

8.1.1 It is prohibited to open the operating gate until the machine has been fully stopped.

8.1.2 The safety mechanism of the operating gate is equipped with an interlocked limit switch for opening. It must be correctly wired as per requirement so as to ensure the power-off of the machine when the operating gate is opened, and additionally in such case the machine cannot be started.

8.1.3 It is forbidden to approach the rotating components by finger during running of the machine. The inspection, maintenance and cleaning work may be done only after the mixer rotor has been completely stopped.

8.1.4 Before the electric circuit is cut off, it is strictly prohibited to open the terminal box for avoiding electric shock.

## 8.2 Safety Marks

### 8.2.1 Explanation of safety marks

1. Safety mark near the operation gate. Injury to your hand or head when opening the operation gate.
2. Safety mark "Beware of injury from the machine": Do not contact running parts with hands when the machine is running. The inspection, repair, disassembly or replacement etc. can be carried out only after the machine is stopped.
3. Safety mark "Beware of electric shock": Do not open the junction box of the motor until it is switched off to avoid electrical injury.
4. Safety mark "No touching": Do not touch the machine to avoid accidents.
5. Marks of rotating direction, which specify the correct rotation directions. Do not rotate reversely, to avoid any damage of the equipment.

If the operator of the mixer does against the regulations, the owner of the machine shall bear any damage resulted thereof.

### 8.2.2 The schematic diagram of safety marks

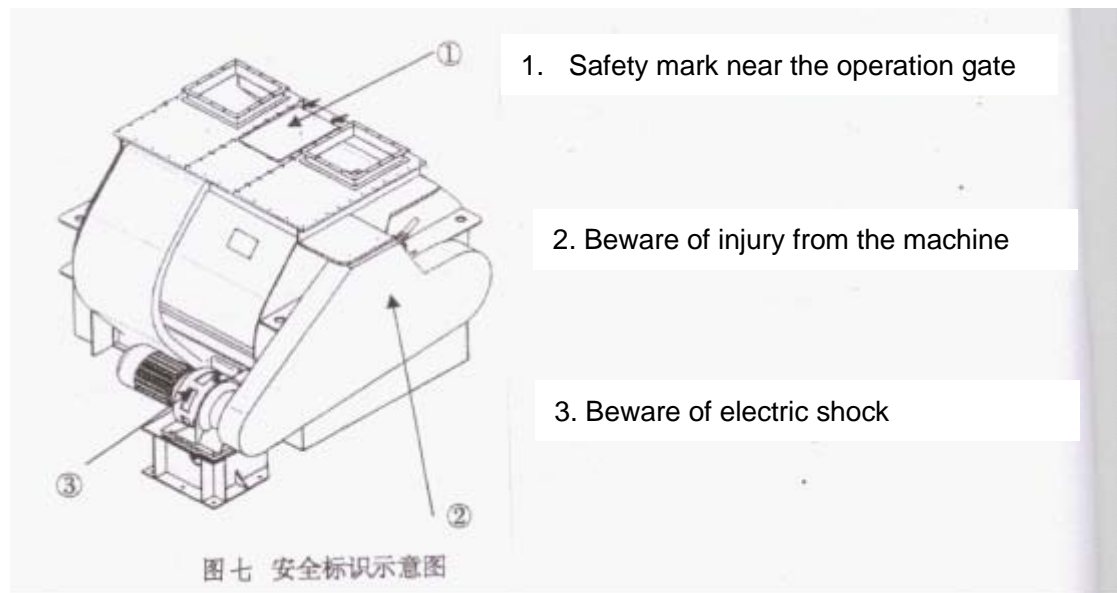


Fig. 7

## **9 Repair and maintenance**

### **9.1 Maintenance for mechanical part**

9.1.1 The discharge mechanism should run flexibly and be cleaned frequently;

9.1.2 Lubricating grease should be replaced regularly for each bearing; the lubricating grease should be sodium base grease (GB492-65) Zn-3;

9.1.3 The driving chain should be brushed over with proper amount of 30# machine oil and cleaned regularly;

9.1.4 Lubrication of the speed reducer. Trademark of the lubricating grease to be used: molybdenum sulphide -2 or ZL-2 lithium base grease, for details on specific amount to be used as well as repair and maintenance, see *Operating Instruction for Cycloid Pin Geared Motor*. Before the machine leaves the plant, ZL-2 lithium base grease has been added into the geared motor, so it is not necessary to add lubricating oil any longer, otherwise, there may be oil leakage at the end cover.

9.1.5 If the equipment is not to be used for a long period, it is required to make a complete cleaning for the equipment, and take measures for corrosion prevention and rust removal.

9.1.6 When it is used for processing premix or concentrate feeds, it is required to remove residual materials from the trough, so as to avoid corrosion.

### **9.2 Maintenance for pneumatic part**

9.2.1 It is required to regularly clean the dust accumulated in the discharge control mechanism;

9.2.2 It is required to regularly clean the filter core, water and oil cups.

9.2.3 The metal parts should be cleaned with mineral oil, and the rubber parts with soap liquid. Both the oil and water cups should be rinsed in petroleum solution, but never in acetone, ethyl acetic ester or toluene solution etc.

## **10 Malfunction and troubleshooting**

### **10.1 Malfunction and troubleshooting**

10.1.1 In case the machine stops while it is working, the discharge gate should be opened to clear off all materials prior to restarting the motor;

10.1.2 If material leakage occurs at the discharge gate, it is necessary to check the contacting condition of the discharge gate with the housing. If the discharge gate cannot be closed tightly, loosen the nuts on both ends of the connecting lever firstly, and then adjust the length of the connecting lever to a proper position (see Fig. 2); if it is caused by an aged seal strip (see Fig. 8), the seal strip should be replaced (see Fig. 9);

10.1.3 When the discharge gate is closed with no signal given out, that means the limit switch is at incorrect position or the circuit is broken, so the position of the limit switch should be adjusted (see Fig. 2) and checks should be made on the circuit;

10.1.4 If the discharge mechanism cannot work normally, it is necessary to check the cylinder and air supply system for any failure, and check the pipe connection for its conformity to the requirements shown in Fig. 6;

10.1.5 If material leakage at shaft ends during operation is caused by the loose bolts on the sealing cover, it is necessary to screw them up tightly; if it is caused by aged sealing members, it is necessary to replace them timely. If there is not enough space for replacing the sealing members, the sprocket and bearing pedestal should be disassembled firstly, then the sealing gland, finally the sealing members should be replaced (see Fig. 10). For types of sealing members, see Table 5.

10.1.6 If light friction noise occurs during the operation of the machine, the position of rotors can be properly readjusted (see Fig.1), and the paddles can be ground if necessary.

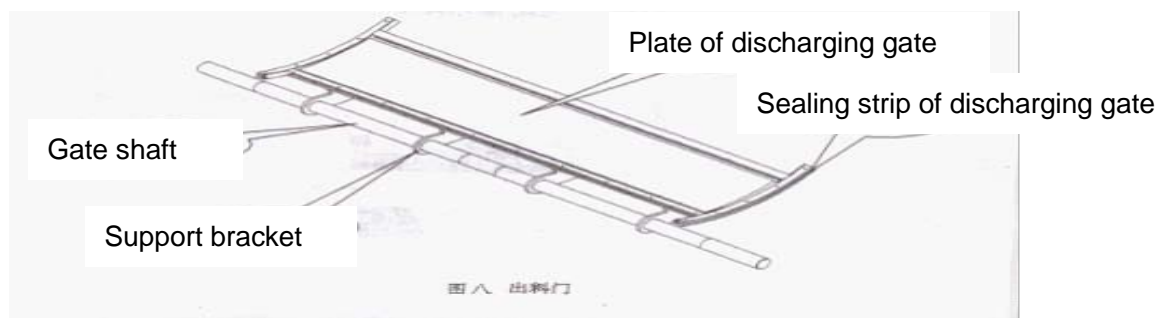


Fig. 8

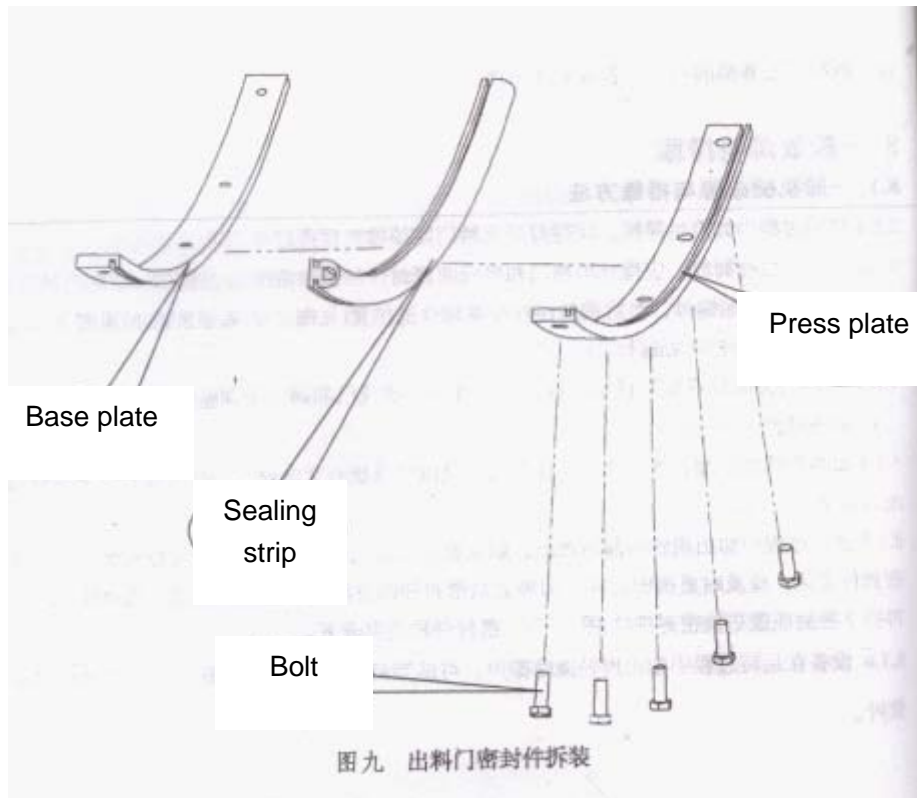


Fig. 9

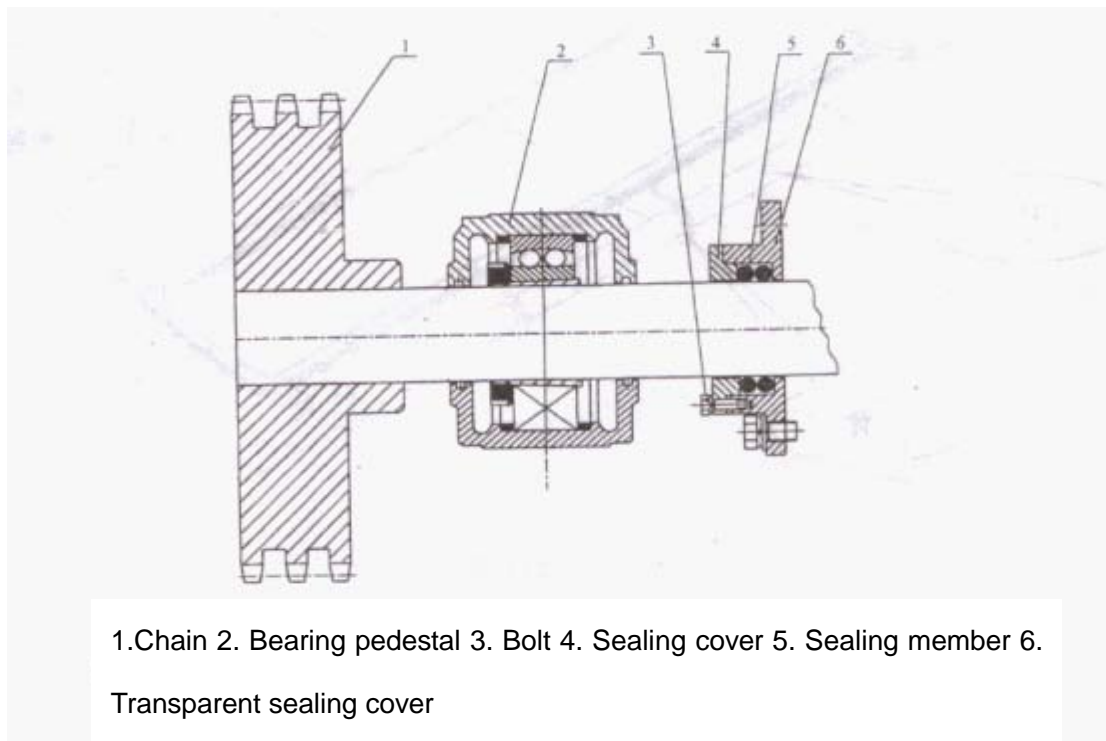


Fig. 10

**10.2 Malfunction of and troubleshooting for the pneumatic control system (see Table 4)**

**Table 4**

<b>Trouble</b>	<b>Cause</b>	<b>Solution</b>
Air leakage between the cylinder body and the end cover	Damaged sealing ring	Replace the sealing ring
Air leakage at the regulating rod of the buffer throttle of the cylinder	Damaged sealing ring	Replace the sealing ring.
Insufficient output force of the cylinder	Poor lubrication	Check the function of the oil mist lubricator
	Insufficient air supply	Increase the internal diameter of the connecting pipe or pipe adaptor
The pressure does not increase when adjusting the pressure reducing valve.	Broken spring	Replace the spring.
No oil drops from the oil mist lubricator when it is working.	Decreased inlet flow rate	Supplement the oil
	locked oil needle	Clean or replace the oil needle
The electromagnet gives out noise.	There is dirt between the attracting surfaces of the iron core.	Clean the dirt
	The voltage is lower than the rated value.	Adjust the voltage
The main valve doesn't reverse or reverses inflexibly.	Bad wiring of the solenoid valve	Check the circuit
	The solenoid valve does not or slowly releases air.	Clean the electromagnet

	Poor lubrication or the working pressure is too low.	Clean, check the oil mist lubricator and increase air source pressure; check the air passage for air leakage
The pneumatic gate cannot be opened.	Insufficient air pressure Too tightly closed throttle	Adjust the air pressure to 0.6MPa, and increase the air release speed of the throttle 3 (Fig.6)

## 11 Transportation and Storage

11.1 Hoisting device on the machine body shall be correctly used when hoisting; DO NOT overturn, heavily press and impact the machine body in transportation.

11.2 Rainproof, sun-proof and anti-seeping facilities shall be equipped when stored in the open air, measures for good ventilation and damp proof shall be taken when stored indoors.

## 12 Unpacking inspection

When the machine has been delivered to destination site, open the package and check against the packing list for any collision and wearing in transportation, carefully check the attached and documents and accessory parts delivered with the machine, and take an unpacking record well.



## 13 Wearing parts list (Table5)

**Table 5**

Name	Type and specification				Qty
	SLHSJ8 SLHSJ7	SLHSJ4	SLHSJ2 SLHSJ3	SLHSJ1	
Bearing	22228CA	22226CA	22224K	22216K	2
	UCP322	UCP322	UCP218	UCP215	2
	6208	6208	6208	6205	2
Chain	24A-3	24A-3	24A-2	20A-2	1
Seal ring	140×170×15	130×160×15	120×150×14	85×115×12	According to demands
	It can be substituted by asbestos if it cannot be bought in local area.				
Seal strip	Rubber seal strip				According to demands
Solenoid valve	4V410	4V410	4V210	4V210	1
Triple members of pneumatic system	AC4010-03-04	AC4010-03-04	AC3010-02-03	AC3010-02-03	1

## 14 Others

### 14.1 IMPORTANT

14.1.1 Provided the equipment is under normal use and maintenance, our company will be responsible for free repair or spare part replacement (wearing parts excluded) due to quality problem and failure of the equipment within one year from the date of the equipment delivery (Invoice date).

14.1.2 The date after one year since the equipment delivery, our company will continue to provide repair and maintenance service for normal operation, while the service cost will be borne by the user.

14.1.3 While the oil addition amount is more 5%, it should be stated in advance.

### 14.2 Attachment

- a. Packing list      one copy
- b. Quality certificate    one copy
- c. Operation manual    one copy

### **14.3 Attached**

- a. Important explanation
- b. Personal protection: Countermeasures against accidents
- c. Explosion Protection: Countermeasures against dust explosion and fire hazard
- d. Comments and Suggestion from Customer
- e. Customer's Feedback Information

## Customer's Feedback Information

Product model		Delivery code	
Delivery date		Application date	
User's firm name		Department	
Address		Contact	
Post code		Tel.	
Application situation and existing problems	<p style="text-align: center;">(Please specify the application process or details)</p> <p style="text-align: center;">Handler:</p> <p style="text-align: center;">Date:</p>		
Suggestions and improvement ideas	<p style="text-align: center;">Handler:</p> <p style="text-align: center;">Date:</p>		
Comprehensive appraisal on the equipment	<p style="text-align: center;">Seal affixation of the user's firm:</p> <p style="text-align: center;">Date:</p>		
Remarks			

## Packing List

No.	Model	Name	Unit	Q'ty	Remarks
1	SLHSJ	Double-shaft paddle mixer	set	1	Motor, motor base, sprocket, chain and guard shield included
2		Packing list	copy	1	
3		Quality certificate	copy	1	
4		Operation manual of mixer	copy	1	
5		Operation manual of cycloid reducer	copy	1	

Packing inspector:

Packing date:

## **YANGZHOU KERUNDE MACHINERY CO., LTD.**

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