



Cone crusher

OPERATING INSTRUCTION



There are different models

- ◆ single cylinder hydraulic cone crusher
- ◆ multi-cylinder hydraulic cone crusher
- ◆ hydraulic cone crusher
- ◆ Symons cone crusher (compound cone crusher)
- ◆ spring cone crusher



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Company Profile

Henan Hongxing Mining Machinery Co., Ltd. is a joint-stock mining machinery manufacturing enterprise integrated in scientific research, production and marketing. for now possessing three large manufacturing bases(Henan Hongxing, Luoyang Zhongde and Zhengzhou Wort). The head quarter of Hongxing Group is located at the High & New Technology Industries Development Zone of Zhengzhou, China with an area of 350,000m², which includes 260,000m² of standard heavy duty industrial workshop. There are more than 600 equipment, including large and medium sized metal processing, riveting and installing equipment. There are more than 2300 workers including 360 administrators with secondary and senior occupational titles and engineering technicians. In order to promote the competitive strength, the advanced technologies have been introduced from America, Germany, Japan and Australia to establish the international advanced production line, first-class modern testing base as well as research centers of sand making, powder grinding, ore beneficiation and building material equipment. Scientific management, advanced processing technology and innovative manufacturing theory make the company become the high-end mining machinery manufacturing and exporting base in China.



40R&D EXPERIENCE



600+ R&D TEAM



35000+WORKSHOP

Hongxing Group lays much emphasis on the quality and clients. We serve clients with the quality guideline of being responsible for every working procedure, every product and every client. What we have done is for the clients and we believe that quality is the best way to develop market. All of the products have passed the authentication of ISO9001, CE and GOST. Hongxing Brand is the Chinese Famous Brand. Reliable and stable quality is the key to access; our products are well known at home and abroad. Now we have tens of thousands of users throughout China and more than 100 world markets.

Our main products include five series, they are: crushing equipment, sand making equipment, ore beneficiation equipment, milling equipment and building material equipment. Moreover, we can provide program design, process flow design, standard and non-standard design for clients. Hongxing Group occupies market by products, creates market by service and leads market by popularity. Establish of Hongxing Brand for satisfaction of users is the persistent pursuit of Hongxing.

Production ability

Vertical Lathe



Hobbing Machine



Heavy Duty CNC Double Column Vertical Car



Crimping Machine





Cone crusher

This instruction is for p900(standard), p1200(medium), 9l 750(short-headed) spring protective and multi-cylinder hydraulic protective, hydraulic adjusting and hydraulic locking cone crusher.

Application rang: Cone crusher is suitable for crushing all types of ores and rocks with compression strength no more than 300 Mpa.

Specifications and technical performance(see Table 1)

Model		diameter of crushing cone(mm)	Max. feeding size (mm)	width of discharge opening (mm)	Processing capacity (t/h)	Motor power (kw)	Swing frequency of man shaft	Total weight (t)	Dimensione(L*W*H) (mm)
PYB	600	600	65	15-25	40	30	356	5	2234*1370*1675
PYD			35	3-13	12-23			5.5	2234*1370*1675
PYB	900	900	115	15-50	50-90	55	333	11.2	2692*1640*2350
PYZ			60	5-20	20-65			11.2	2692*1640*2350
PYD			50	3-13	15-50			11.3	2692*1640*2350
PYB	1200	1200	145	20-50	110-168	110	300	24.7	2790*1878*2844
PYZ			100	8-25	42-135			25	2790*1878*2844
PYD			90	3-15	18-105			25.3	2790*1878*2844
PYB	1750	1750	215	25-50	280-480	160	245	50.3	3910*2894*3809
PYZ			185	10-30	115-320			50.3	3910*2894*3809
PYD			85	5-13	75-230			50.2	3910*2894*3809
PYB	2200	2200	300	30-60	59-1000	280-260	220	80	4622*3302*4470
PYZ			230	10-30	200-580			80	4622*3302*4470
PYD			100	5-15	120-340			81.4	4622*3302*4470

Notes: The tabulated yield is tested in open-circuit process flow and conforms to the following conditions a. Water content

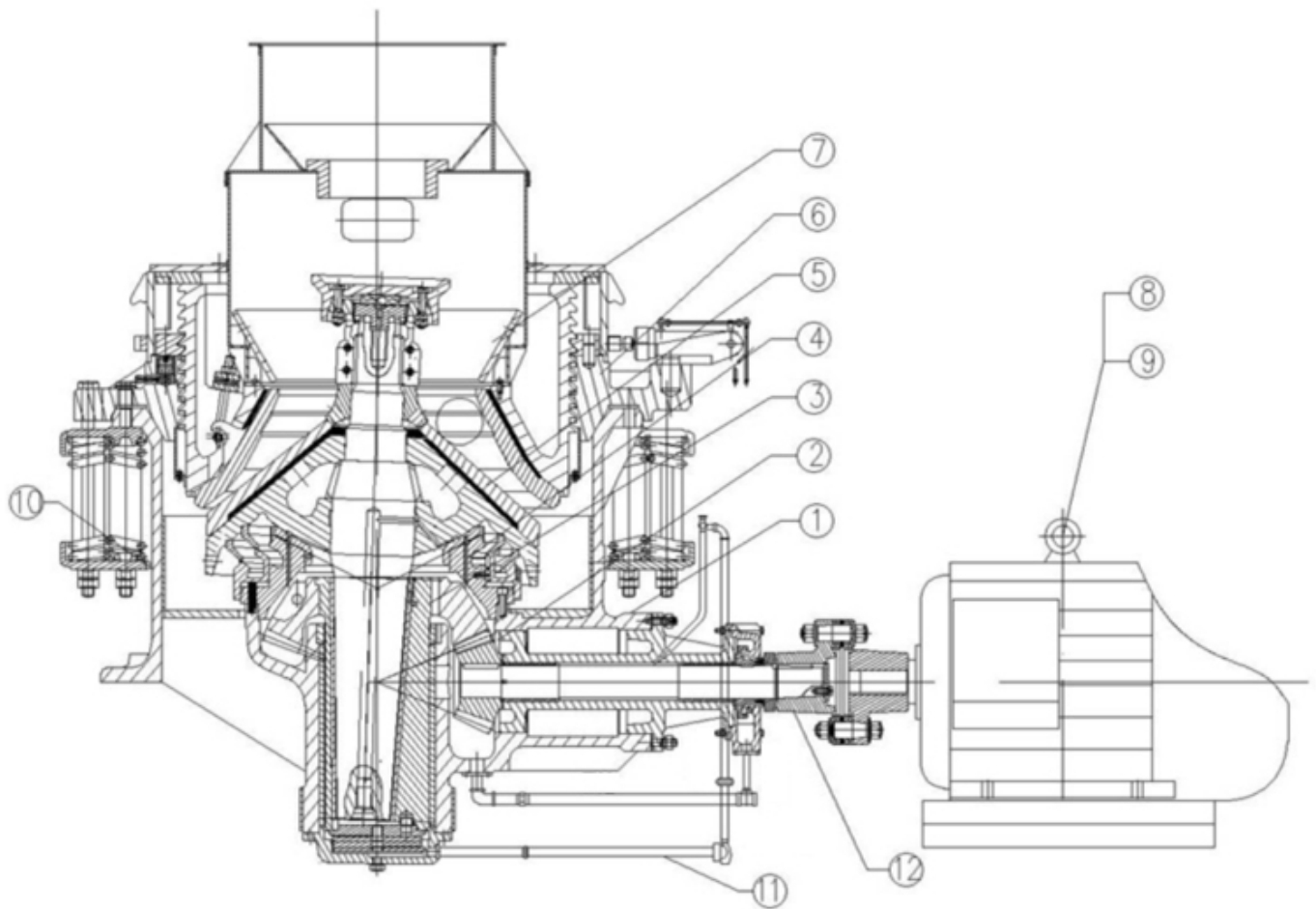
a. Water content in ore should not exceed 4%, and there should be no clay.

b. The ultimate compression strength is 100-150 Mpa.

c. Bulk density should be 1.6t/m³.

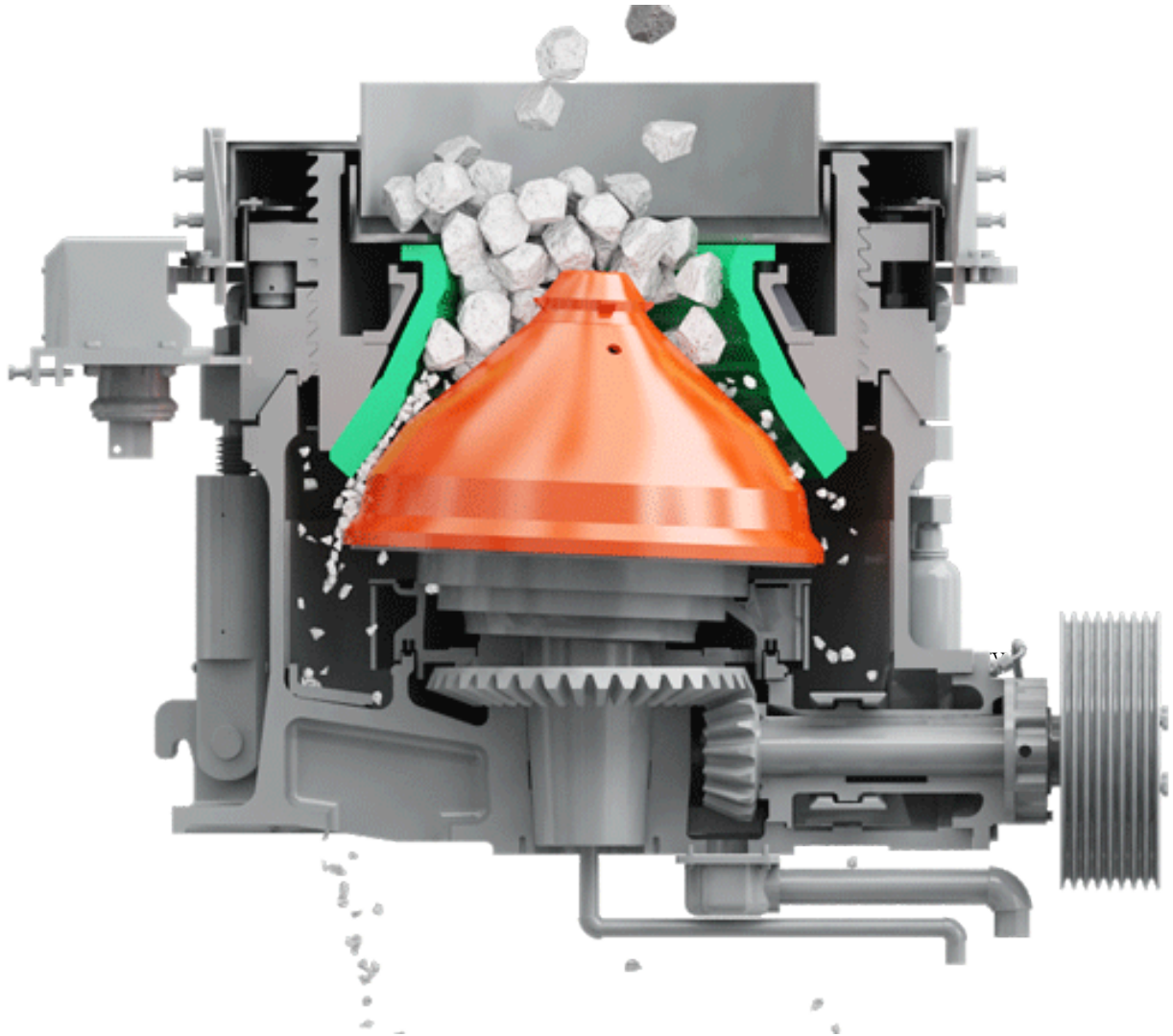
Cone crusher

Structure diagram



- | | | | |
|-----------------|----------------------|-----------------------|---------------------|
| 1.frame | 2.transmission | 3.an eccentrie sleeve | 4.Bowl type bearing |
| 5.crushing cone | 6.adjustment fitting | 7.adjusting sleeve | 8.motor |
| 9.foundation | 10.spring | 11.lubrication | 12.coupling |

Composition and crushing theory



Our main products include five series, they are: crushing equipment, sand making equipment, ore beneficiation equipment, milling equipment and building material equipment. Moreover, we can provide program design, process flow design, standard and non-standard design for clients. Hongxing Group occupies market by products, creates market by service and leads market by popularity. Establish of Hongxing Brand for satisfaction of users is the persistent pursuit of Hongxing.

When cone crusher works, the electromotor drives the eccentric bushing to rotate through the transmission shaft and a pair of bevel gears. The crushing cone will be forced by the eccentric bushing to revolve, so that the crushing wall of cone crusher gets close to and then gets away from the surface of the rolling mortar wall, and the ores inside the crushing chamber will be constantly impacted, squeezed and bent to be crushed.

Installation and test run

1.This instruction only includes special installation and other part can refer to common instruction.

2.Hoisting equipment

Inside the workshop where crushers are installed, there must be hoisting equipment for the of the equipment. The hoisting capacity of the crane can be selected according to Table 2.

Table 2				
Name	PYB900	PYB1200	PYB1750	Needed period
Frame	2300Kg	5005Kg	10830Kg	Installation
Eccentric sleeve	400Kg	883Kg	2287Kg	Installation and maintenance
Bowl bearing	400Kg	728Kg	2014Kg	
Crushing cone part	1300Kg	3310Kg	7760Kg	
Adjusting sleeve	1200Kg	3340Kg	9040Kg	
Remarks				

3. General instruction on installation

(1) Before installation, the number of the spared parts must be checked, and check and clean the damage on the finished surface and screw thread of all the spare parts caused in the loading and unloading and transporting process, and remove the protective paint on the finished surface painted when packaging and the dust and dirt falling during transportation.

(2) When installing, smear dry oil on the stationary contact surfaces and thin oil on the movable surfaces.

4. Foundation

(1) The crusher must be installed on the form reinforced concrete foundation, and the depth of the foundation can be determined by the local soil texture.

(2) To avoid the accumulation of the crushed ores, under the foundation, there must be enough space to install transportation equipment.

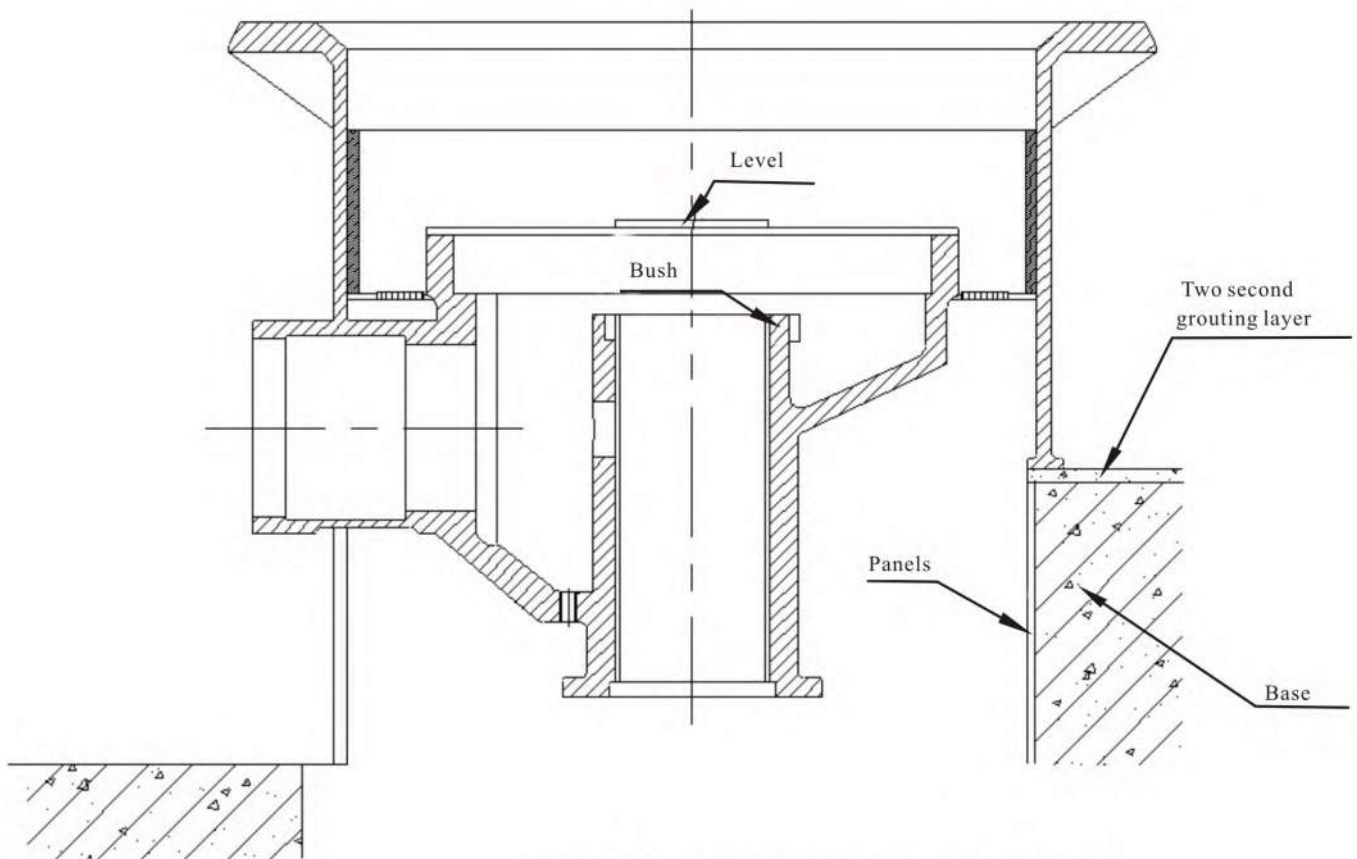
(3) To protect the foundation from being damaged,a guard board must cover on the foundation and this guard board is provided by the customers themselves.

(4) The foundation drawing provided by our company only provides the position of the bolts for capital construction, but not infrastructure construction drawing.

(5) As for the position of the lubrication system and the electrical operation, the customers can change it according to the specific environment of their workshop, but can never change the order.

5. Installation of the main frame

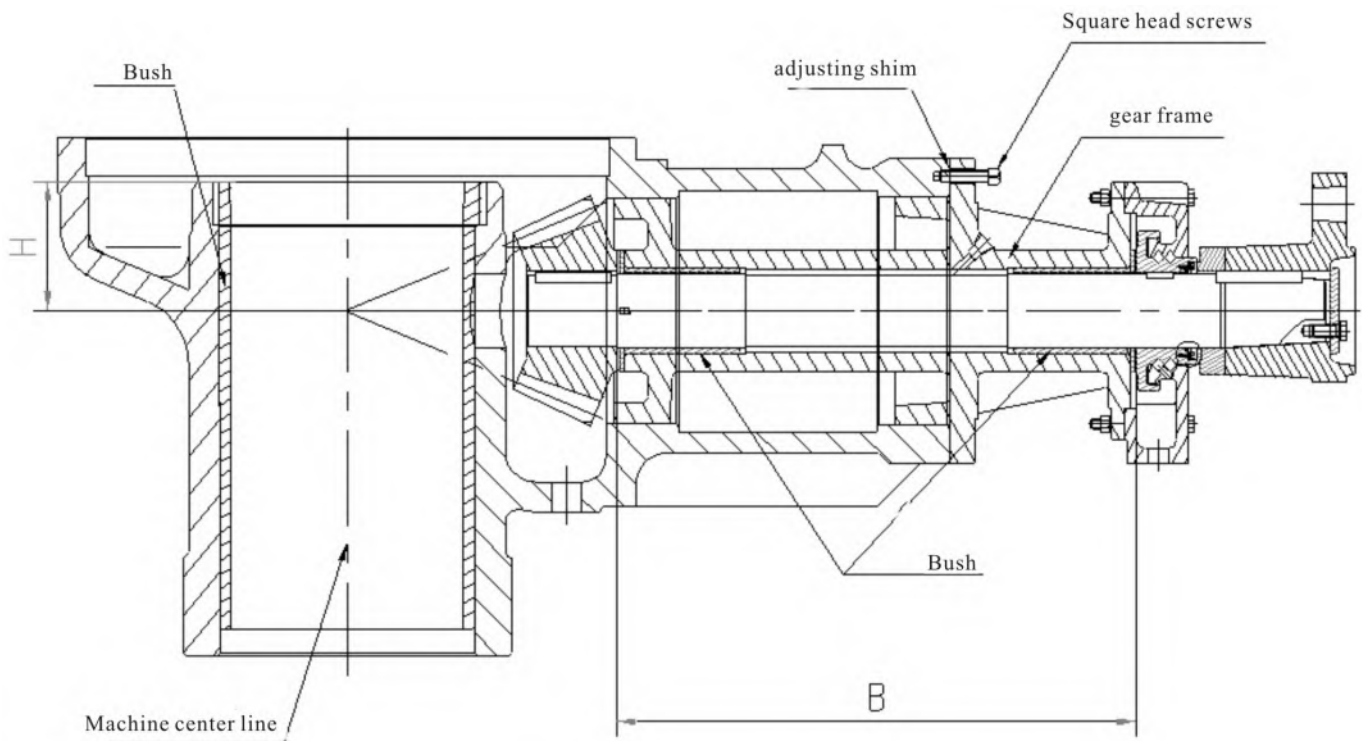
- (1) Verticality and horizontality should be strictly observed. A gradienter and overhang can be used on the annular processing surface of the pedestal to check the center line.
- (2) Use the adjusting wedge iron to adjust the level of the pedestal, and then fasten the foundation bolt for back-grouting.
- (3) When the back grout blanket is hardened, take the wedge iron out of the pedestal and fill the gap with cement, and check it according to the Installation(1).
- (4) Maintaining the horizontality and verticality of the pedestal can ensure the reliable work of the equipment, otherwise the copper bush may contact the machine with single surface, which will grind the eccentric bushing and cause abnormal operation of the crusher.



Drawing2 Installation of the main frame

6. Installation of the transmission shaft

- (1) Add an adjusting gasket to the male flange between the pedestal and the transmission shaft frame.
- (2) After installing the transmission shaft, use a sample board to check the size related to the transmitting gear.
(See Drawing 4.)
- (3) The axial movement of the transmission gear should be 0.4-0.6mm (which is the gap between B).
- (4) When dismantling the transmission shaft, the square fixed screw on the flange can be used to push out, and do not screw it when running the transmission shaft.



Drawing4 Installation of the transmission shaft

7. Installation of empty eccentric shaft

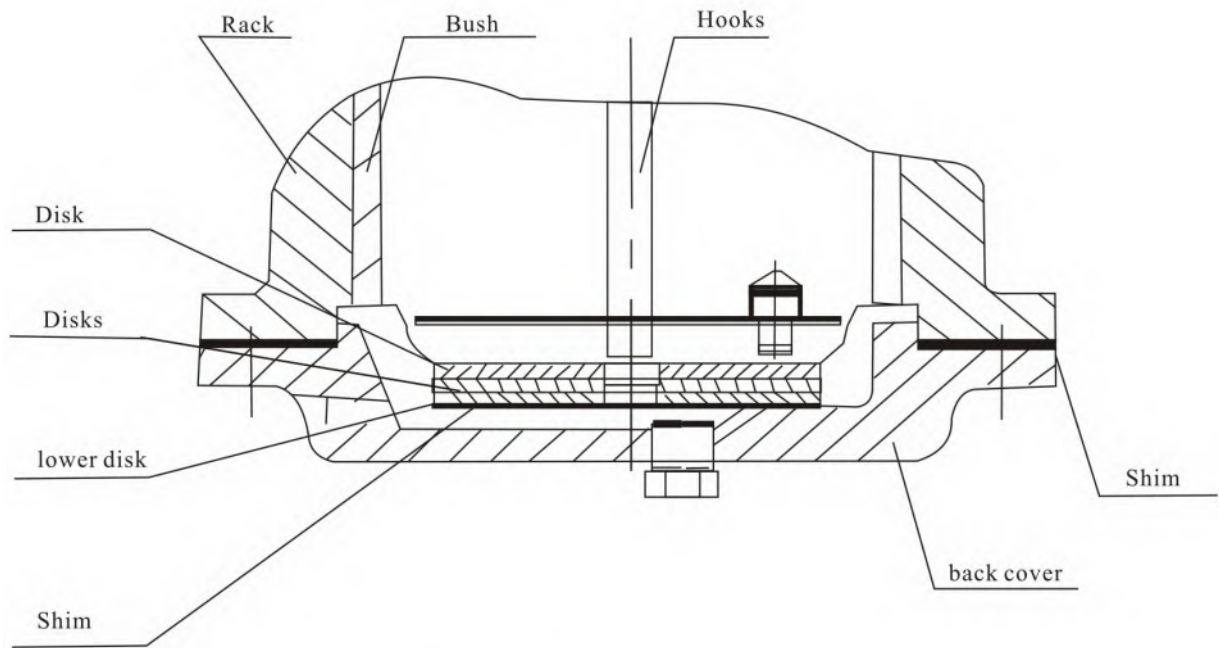
(1) Before putting it into the empty eccentric shaft, place the gasket on the bottom cap and install the bottom cap with a lifting hook onto the lower part of the main frame, and put the adjusting gasket in. Use the lifting hook to install the lower plate and the plate on the bottom cap and make sure the bulge of the lower plate and the recession of the bottom cap match.

(See Drawing 5)

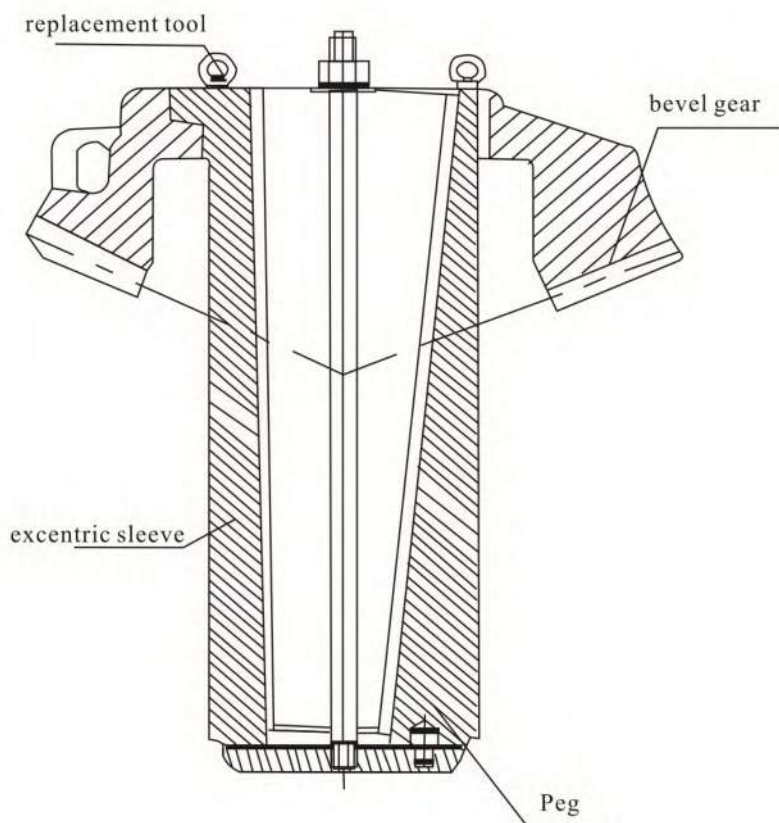
(2) When assembling the empty eccentric shaft as per Drawing 6, use the eye screw to put it into the centre hole of the main frame. The empty eccentric shaft should fall in steadily and the gear should be protected from being impacted.

(3) After installing the empty eccentric shaft, the outer end of the rack wheel and the pinion should be in alignment

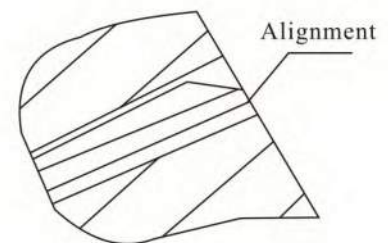
(See Drawing 7) to check the back lash of the gears and the gear clearance should be 2.1-2.58 mm. The edge height of the tooth of the contact surface of the gear should be over 50% and the edge length of the tooth should be over 50%.



Drawing5 Thrust bearing installation diagram



Drawing 6 Installation of empty eccentric shaft



Drawing 7 Gear meshing graph

8. Installation of the bowl-shaped bearing

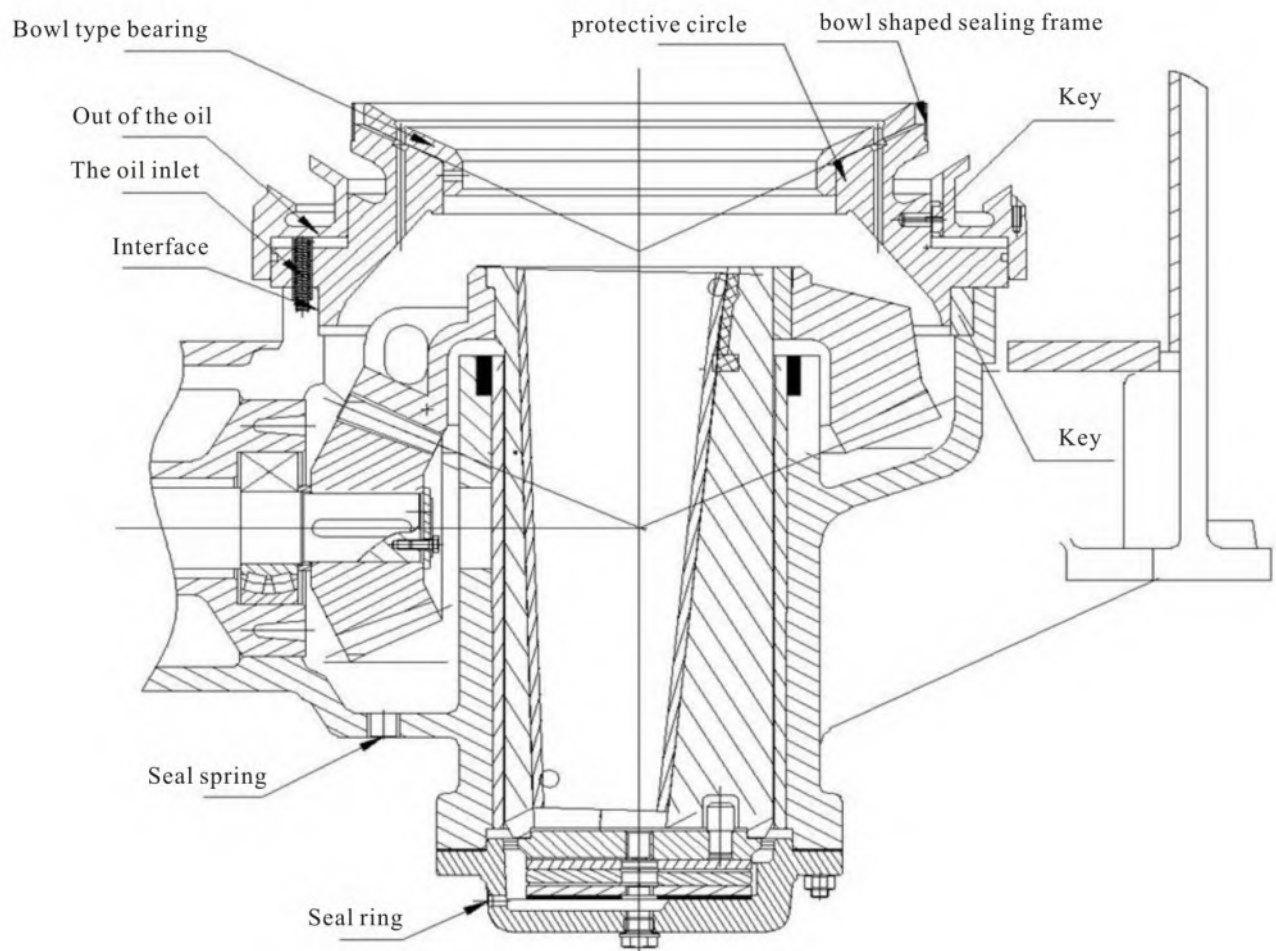
(1) Preparatory work before the installation

- a. Clear the clutter inside the oil groove and the oil hole.
- b. Check if there is any damage or deformation in the scraper seal and the oil deflector.
- c. Check all the processing surfaces. Any damage should be repaired immediately.

(2) The bowl-shaped bearing frame should be closely matched with the pedestal and use a feeler gauge to check the closeness condition of the horizontal contact surface. (See Drawing 8)

(3) After installing the bowl-shaped bearing, immediately cover the bowl-shaped tile with a cover plate and remove it when installing crushing cone.

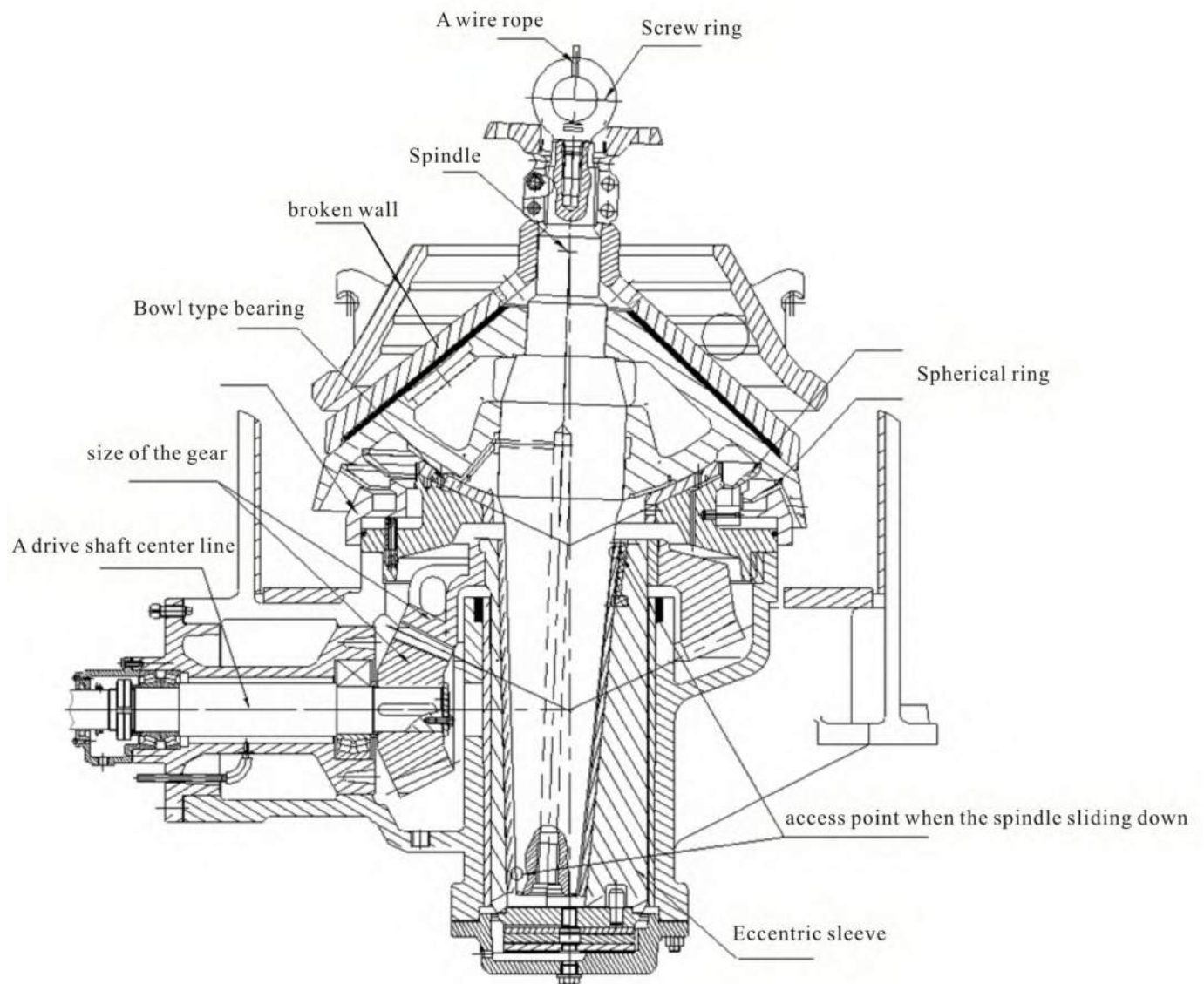
(4) When installing sealing spring and sealing ring, smear lubricating grease on the contact surfaces, and smear lubricating grease inside the ring slot of the sealing ring after the installation.



Drawing 8 Installation of the bowl-shaped bearing

9. Installation of crushing cone

- (1) Before the installation, set a wood shelf nearby to hold the crushing cone.
- (2) Get rid of the protective oil on the shaft and the surface of the ball and clean the lubricating oil hold and oil groove with the wind.
- (3) Smear a layer of yellow glycerin on the surface of the axis of the cone and a layer of thin oil on the surface of the ball.
- (4) When putting in crushing cone, gently put it into the eccentric shaft and make sure the surface of the ball steadily contacts the bowl-shaped shaft tile; avoid damaging the ball-shaped ring and install it as per Drawing9.



Drawing 9 Installation of crushing cone

10. Installation of lubricating device

- (1) The lubricating device can be installed according to the assembly drawing provided by our company, or according to the specific local conditions. If installed according to the specific local conditions, the assembly drawing and the needed spare parts should be provided by the customers themselves.
- (2) The configuration of the lubricating device should make sure that the lubricating grease can return smoothly and successfully.
- (3) The installation of the lubricating device should be complete before installing the crushing cone because the dismantle and repair of the lubricating device is convenient if anything goes wrong.

11. Idling test

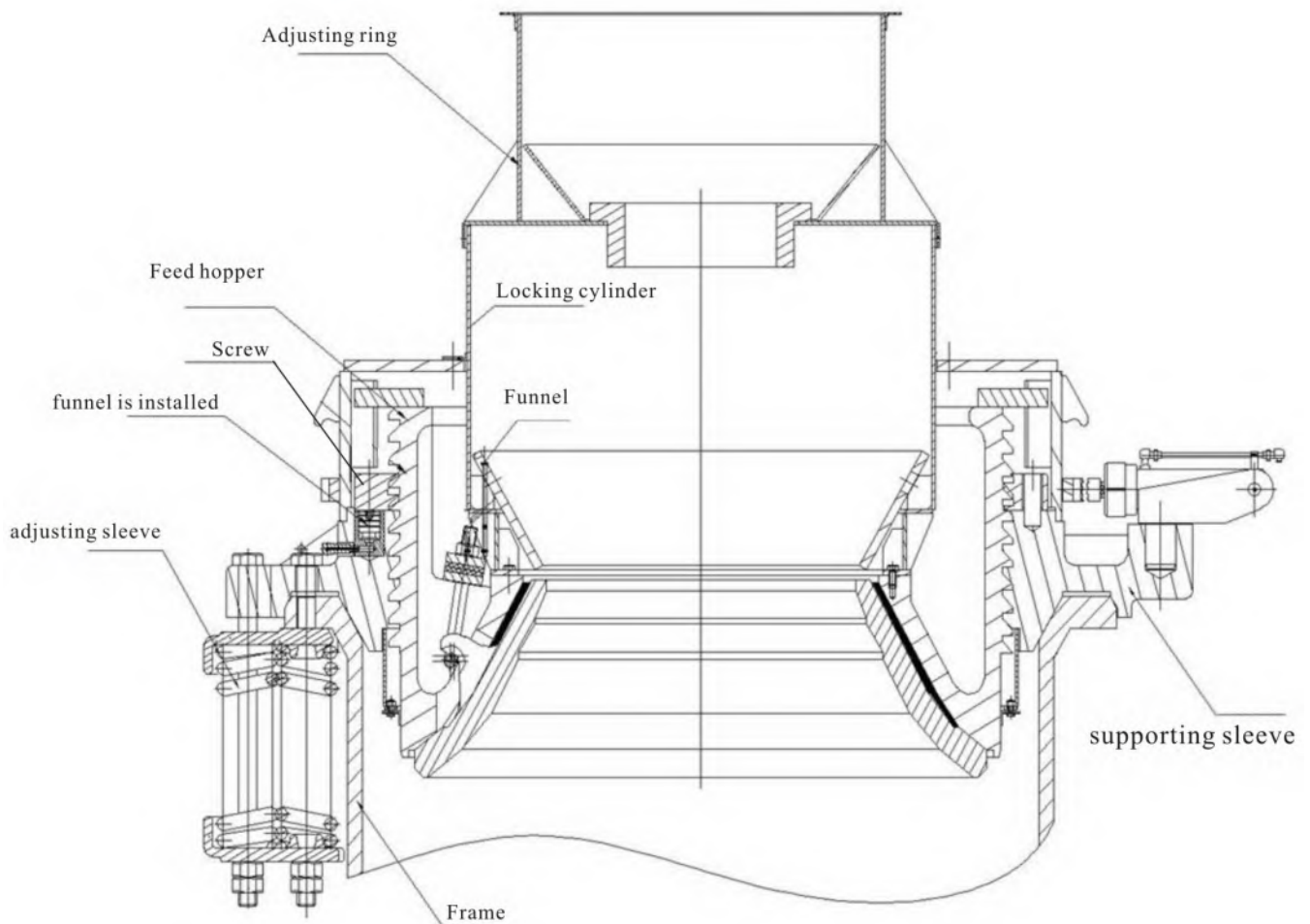
After installing all the above-mentioned parts, an idling test should be conducted to check whether the installation conforms to the requirement or not, and if not, repair is convenient at the time.

- (1) Before starting the crusher, check the fastening condition of the main connection parts.
- (2) Run the crusher with hand before starting, make the empty eccentric shaft rotate for 2-3 circles at least. If the empty eccentric shaft can rotate flexibly, the crusher can be started.
- (3) Start the oil pump first and do not start the crusher until all the lubricating points are lubricated and the oil returns the oil box.
- (4) The idling test should be over 2 hours.
- (5) The idling test of the crusher should meet the following requirements;
 - A. The number of revolution of the crushing cone around its centre line should not exceed 15 times a minute.
 - B. The bevel gear wheel should not have periodic noises.
 - C. The lubricating device should meet the following requirements: a. The pressure of the oil supply pipe should be in the range of 0.08-0.15MPa b. The temperature of the returning oil should not be higher than 50°C.
 - D. When dismantling the spare parts after the idling test, all the friction parts of the crusher should not be hot or abraded.
- (6) When the crushing cone rotates too fast, accidents may happen, then immediately stop the machine and check and adjust the rotating speed, and at the same time, check the oil supply account and conduct the idling test again.
- (7) If there are periodic noises on the bevel gear wheel, check whether the gear is correctly installed and check the gear clearance.

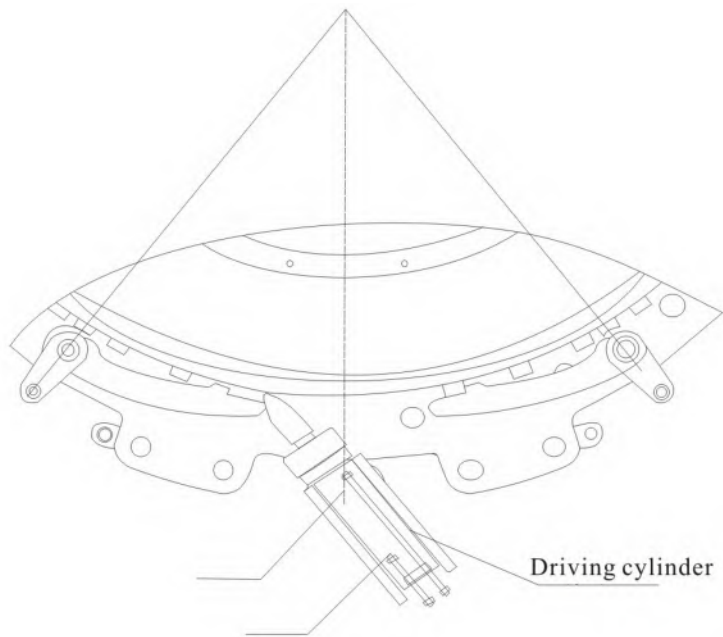
12. Installation of adjusting device, adjusting sleeve and spring

- (1) Clean up the support sleeve and the adjusting ring, smear mixed liquor of dry and thin oil on the saw-tooth thread and install the locking oil cylinder on the support sleeve, and connect the joint part of the locking oil cylinder to that of the hydraulic station. (See the drawing)

- (2) Install the support sleeve onto the main frame.
- (3) Set the locknut on the support sleeve and nail four pins into the pin hole.
- (4) Put the adjusting ring into the support sleeve in a rotating manner.
- (5) Install the funnel device and the funnel.
- (6) Install the dust cover. Pay attention to make the four key blocks of the adjusting ring stuck in the neck of the dust cover.
- (7) Adjust the working height H of the spring according to the stipulation of the drawing.
- (8) Install the pushing cylinder according to the position stated in Drawing 12, and the two joint parts M and N of the pushing cylinder should respectively connected to the joint parts M and N of the hydraulic station.



Drawing 11 Installation of adjusting device, adjusting sleeve and spring



Drawing 12 Install the pushing cylinder according to the position stated

13. Installation and adjustment test of hydraulic station

(1) Put the hydraulic station of a crusher on a proper position of the foundation part for the convenience of operation, and the spare parts of the pipeline and the hoses connecting the hydraulic station of the main engine can be properly arranged according to the actual condition of the worksite.

(2) The three openings M,N,P of the hydraulic station should be respectively connected to the opening Mand N of the pushing cylinder and the opening P of the locking cylinder.

(3) After installing all the parts of hydraulic station, conduct bulge test, and the test pressure is 140MPa.

(4) Locking test

A. Before the locking test, aerate 7-80MPa nitrogen into the accumulator.

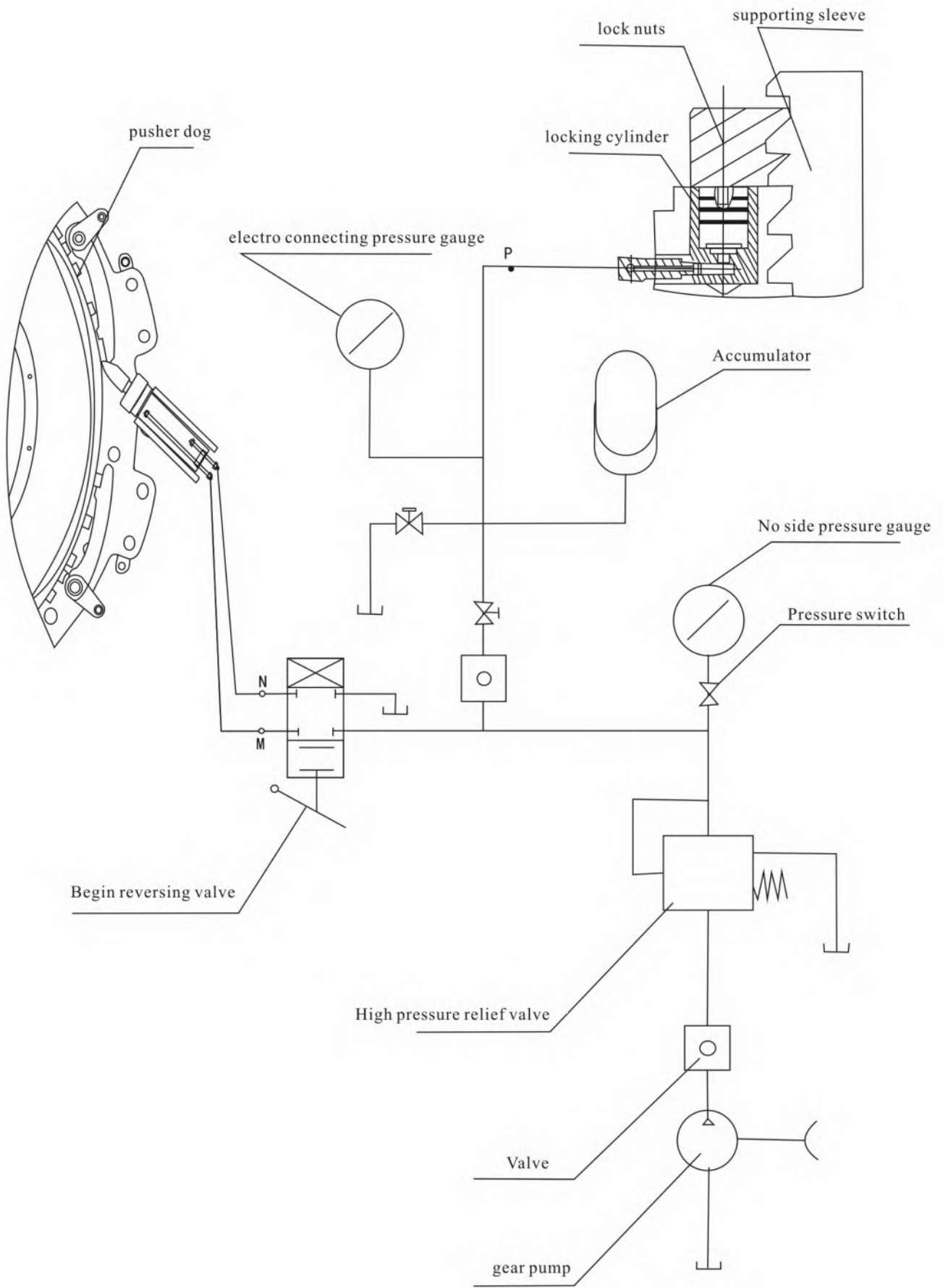
B. Put pressure into the locking cylinder after releasing the pressure inside the pushing cylinder.

C. In the test, the remaining gas of the locking cylinder and the pipelines can be discharged from the spiral on the bottom of the accumulator.

(5) Adjusting test: After releasing the pressure inside the locking cylinder, using the pushing cylinder to adjust the ore discharging mouth.

(6) Make sure that the spare parts of the hydraulic station are in good condition and can be operated flexibly.

Drawing 16 is diagram of hydraulic station.



Drawing 16 Schematic diagram of hydraulic station

14. Load test

- (1) Load test can only be conducted after the idling test is up to standard.
- (2) The load test should continue two days and nights (short time of stop for examination is allowed).
- (3) At the beginning of the load test, add a small amount of ores, and gradually increase the amount until full load.
- (4) Load test must meet the following requirements:
 - A. The crusher does not produce strong vibration and noises.
 - B. The ore feeding and discharging of the crusher is normal and the output is similar to the stipulated output.
 - C. Hydraulic station working in a normal state.
 - D. Lubrication system meets the following requirements:
 - a. The oil supply pressure should be in the range of 0.08-0.15MPa.
 - b. The temperature of the returning oil should not exceed 50°C.
 - E. All quick-wear parts are not abraded.

Crusher maintenance

1. The matters needing attention in using crusher

- (1) The ores must be fed into the middle of the distribution plate, and it is forbidden to directly feed the ores inside the crusher as this is easy to make the crusher over load and the abrasion of the lining board uneven.

Correct ore feeding condition:

- a. The ores are evenly scattered into the crushing chamber through the distribution plate.
- b. The fed ores should not be higher than the level of the rolling mortar wall.

- (2) The maximum feeding size of the crusher is not equal to the size of the feeding mouth(the maximum feeding ore should be smaller than 85% of the size of the feeding mouth), otherwise, it will cause:

- a. The reduction of the crusher yield.
- b. The damage of some spare parts of the crusher.

- (3) The crusher can never be started with load, as load starting will definitely cause accident.

- (4) When stopping the machine, stop the ore feeder first, and wait until the ones that are already fed into the crushing chamber are crushed and discharged.

- (5) During the working process of the crusher, regularly check the pressure of the locking system and the working condition of the hydraulic station, and if anything goes wrong, take care of it immediately.

2. Yield of the crusher

The yield of the crusher is related to the feeding method, feeding size, discharging size, physical and mechanical performance and temperature of the ore. The changing range of the yield is big and the yield given by the manufacturer is an estimated value on given condition.

3. The changing of the rolling mortar wall

The rolling mortar wall is fixed on the adjusting ring with U-shaped bolt, between which epoxy resins filler is injected to make them closed combined. After installing a new rolling mortar wall or changing an old one, check the fastening condition and tighten again the U-shaped bolt after it works for 6-8 hours.

4. The changing of the crushing wall of the cone

The crushing wall of the cone is fixed onto the cone body with cone head, between which epoxy resins filler is injected. After the newly installed or changed crushing wall of the cone works for 6-8 hours, check the fastening condition, if loose, immediately fasten it.

5. The bowl-shaped bearing and the sealing device

When installing the bowl-shaped bearing, pay attention to protecting the oil blocking cup from the steel wire rope (the material such as hard wood can be used to support between the steel wire rope). When assembling, the support ball surface should be scraped to make sure that the crushing cone and the bowl-shaped tile ball surface contact in the outer circle and there is a ring gap of 0.35 mm in the inner circle. The bowl-shaped bearing bush is fixed onto the bowl-shaped bearing frame with pins to prevent it from rotating along the peripheral direction. The bowl-shaped shaft frame and the frame are fixed with key or pin, and if there is gap between them, immediately take care of it.

The sealing and anti-dust device is to protect the lubrication grease from becoming dirty and protect the main spare parts from dust, thus avoiding abnormal abrasion. To ensure normal work of the machine, the following matters should be noted when using it:

- (1) The sealing ring can freely slide up and down.
- (2) Regularly check the bonding condition of the ball-shaped circle of the crushing cone and the sealing ring. If any damage is caused, immediately repair or change it as the crusher is forbidden to work without anti-dust device.
- (3) Regularly check the amount of the lubricating grease in the ring groove of the sealing ring; if insufficient, immediately supply it.

6. Cylindrical

Bush is fixed on the main frame. To prevent the bush from rotating, inject zinc alloy into the upper groove of the bush. When changing new bush, prepare it according to the installation size of the main frame because the matching relationship may change after the crusher works for a long time and after many times of loading and unloading. and if the gap is too big, the bush may break.

7. Cone bush

Inject zinc alloy between the cone bush and the empty eccentric shaft to prevent the cone bush from rotating and the zinc alloy should fill the entire gap. Hot zinc alloy may cause the deformation of the cone bush, for this reason, when putting new cone bush into the eccentric sleeve, check the matching condition of the upper and lower opening.

8. Spring

(1) The spring is used for protecting the crusher from being damaged when the materials that cannot be crushed go into the crusher, so the pressure of the spring should fit the crushing force of the crusher. During the working process, the spring is static, and it only lifts the support sleeve and is compressed when iron falls into the crushing chamber and cause overload.

(2) Sometimes the crusher may vibrate in the normal working process, which is abnormal. The customer must carefully analyze the reason and take some measures to eliminate it. Wrongly compress the spring will not help with the normal work of the crusher, but damage the spare parts because compressing the spring will increase the crushing force.

The reasons causing the vibration of the upper part of the crusher include:

- A. The ore feeding is not even or too much.
- B. The gap of the ore discharging mouth is too small.
- C. There are too many small-sized or powdery ores in the fed ores or the temperature of the ore is too high.

9. The exposed rotating part of the equipment should be covered by shield which should be provided by the customer themselves.

Crusher lubrication

1. Lubrication system

All the running surfaces of cone crusher shall sustain huge pressure and the running speed is high, so that regular lubrication has great significance to ensure normal work of the crusher. This machine adopts mid-cyclic lubrication.

The lubricating grease of the thin oil station goes into the crusher in two separate paths.

(1) One path is through the oil feed hole of the tap cover of the pedestal, the oil goes to the bottom of the machine and then to the disk of the bearing, through the middle hole of the main shaft to the bowl-shaped bearing and the bevel gear, and flows back to the oil box from the machine hole of the bottom of the small bevel gear.

(2) The other path is that the oil goes in from the oil pipe of the transmission shaft frame to lubricate the bearing on both ends of the transmission shaft, and flows back to the oil box from the oil return hole of the dust cap of the shaft frame and the bottom of the bradawl.

To make sure that the crusher can get sufficient lubrication in the running process, lubrication system and the main engine, the equipped feeding machine and the conveyor machine adopt electric interlock. Before starting the main engine, first open the oil pump, otherwise the main motor cannot be started. When the oil pump stops and the oil pressure decreases below 0.05 MPa or the oil temperature exceeds 60°C,a signal will be sent out and at the same time, stop the operation of the main engine of the feeding machine to protect the spare parts from being damaged.

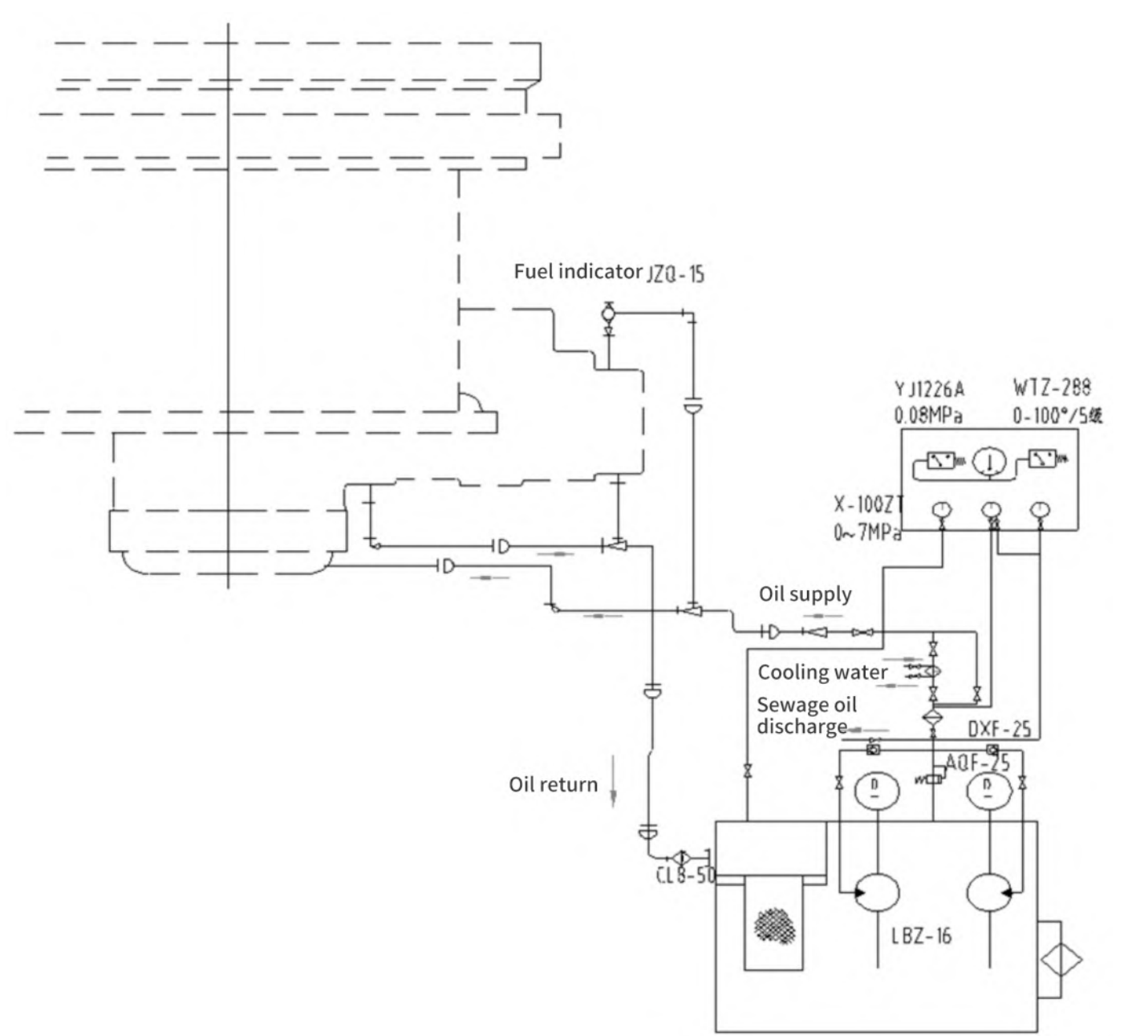


Figure 18 lubrication chart

2. The selection of lubricating grease

In winter, use N32 or N46 machine oil, and in summer, use N100 machine oil. As for general temperature, use N68 machine oil. (Attached is Comparison Table of New and Old Standard of Lubricating Grease)

Comparison Table of New and Old Standard of Lubricating Grease(for reference)				
Old standard	20#	30#	40#	50#
New standard	N32	N46	N68	N100

3. The pressure of the water going into the cooler should lower than the oil pressure. The water temperature is about 20-25°C and the water must be clean.

4. The main engine can only be started when the oil pressure of the crusher reaches 0.08-0.15MPa, which means that the lubricating grease reaches the lubricating point.

5. When the oil pressure is below 0.05MPa, the electric control system will give out a signal, and then the worker should immediately stop feeding ore and figure out the reason.

6. After long time of working, the temperature of the lubricating grease inside the crusher may rise, but it cannot be higher than 60°C, otherwise, immediately stop the crusher, figure out the reason and eliminate it.

7. After long time of working, the temperature of the lubricating grease inside the crusher may rise, but it cannot be higher than 50°C, otherwise, immediately stop the crusher, figure out the reason and eliminate it.

8. As for the newly installed crusher, at the beginning 3-4 months, the lubricating grease should be changed every 1-1.5 months, and changed every 3-4 months since then, and regularly supply new lubricating grease.

9. Keep the filter clean. If the oil amount decreases during the working process, perhaps the oil net is blocked, immediately stop the machine and repair the net.
10. Check, clean and repair the oil pipes at least once a year.
11. When cleaning the pipe of the lubricating system, pay attention to checking the places where impurities and dirty things may accumulate, for example, the crook of the pipe; and determine to clean the whole oil conduit or to clean the part according to the
12. After changing new oil, clean the filter unit, and when checking and repairing the machine, repair and check the filter unit.
13. The oil pump should be checked at least once a year, and the pressure gage should be checked at least every half year.
14. When the lubrication system does not work, the oil level inside the oil container should reach the upper limit; and the when it works, the oil level should not be lower than the lower limit.

Operation instruction

1. Before starting the main engine, first start the thin oil station. When the system can be normally lubricated, start the main engine, and after the crusher can work normally with empty load, start the feeding machine.
2. Before stopping the crusher, stop the material feeding. After all the ores inside the crushing chamber are discharged, stop the crusher and then turn off the oil pump of the thin oil station.
3. Before starting the oil pump of the thin oil station, turn on the relevant oil-water valve and pressure meter switch of the thin oil station and adjust the pressure governor to make sure the oil pressure is in the range of 0.08-0.15 MPa and the oil temperature is 30-40 °C. If the oil temperature is too low, first turn on the resistive heater to heat the oil.
4. About the detailed functions of the electric switch, please refer to the electric control cabinet instruction, and the electric switch should be placed in proper position before starting the machine.

Failure causes and solution

Failure	Causes	Solution
he oil flow indicator has oil flow, and the oil pump is running, but the oil pressure is below 0.05MPa.	(1)The temperature of the oil is too low (2)The oil-way switch is not well turned on (3)The oil pump does not work well	(1)Warm the oil (2)Check the oil-way switch (3)Check and repair or change the oil pump
The pressure difference before and after the filter is too much	The filter is blocked	When the oil pressure difference exceeds 0.05MPa, clean the filter pump
The oil temperature rises along with the rise of the oil pressure	The oil pipe or the oil-way inside machine is blocked	Stop the machine to find where blockage is and remove it
The oil temperature exceeds 60°C, but the oil pressure does not rise	There is breakdown at the transmission and rub in the machine	Stop the machine to check the frictional surfaces including ball tile, bush and thrust washer, find the failure cause and eliminate it
The oil amount inside the oil box decreases (the oil level declines)	(1) The bottom end cap of the machine leaks oil. (2) The flange of the transmission shaft leaks oil. (3) The bowl-shaped bearing pedestal or the oil return groove of the tile is blocked, so that the oil leaks from the anti-dust device.	(1) Stop the machine to fasten the bolts or change the gaskets (2) Stop the machine and check and clean the oil way and the oil groove, adjust the oil amount and eliminate the oil decrease
There is water in the oil, and the oil level in the oil box rises	(1) The water pressure of the cooler is higher than the oil pressure. (2) Water leaks out from the cooler. (3) The water supply amount of the water seal is too much. (4) The water return pipe is blocked.	(1) Adjust the water pressure to make it lower than the oil pressure. (2) Check and repair the leak part. (3) Adjust the feed water quantity. (4) Clean the water return pipe and the oil box and change new oil.
There is oil in the water drainage of the water seal and the oil temperature does not rise	The bowl-shaped tile oil retainer and the oil groove are blocked	Clean the oil groove and the oil return pipe.

Crusher often vibrate swhen working	(1) The spring is under pressure. (2) Fine and sticky materials are fed. (3) The ore feeding is not even or toomuch	(1) According to the rule, screw the spring and press the nut and change the spring. (2) Feed ores according to correct method.
Crusher strongly vibrates and the cone part rotates fast.	The principal axis is held by the following reasons: (1) There is oil shortage between the main shaft and the bush or there is dust in the oil (2) The abrasion of the bow-shaped tile or improper manufacture makes the movable cone sink (3) The gap between the cone bushes is not sufficient (4) The gap between the ball-shaped ring and the bowl-shaped tile sealed ball surface is too small or they contact.	Stop the machine to check it, find the cause and eliminate it.
The transmission shaft does not rotate evenly, and after producing strong knocks or knocking, the coupling runs but the crushing cone does not.	(1) Due to improper installation or the axial clearance of the transmission shaft is too big, the tooth of the bevel gear wheel is abraded or damaged. (2) The coupling or the key on the gear is damaged. (3) The principal axis breaks as non-crushable materials fall in.	(1) Change the gear and correct meshing clearance. (2) Change the keys. (3) Change the principal axis and the strengthen the efforts of iron picking.

Audible splitting sound is produced when the machine crushes materials or runs with empty load	(1)The lining board of the movable cone or the fixed cone is loose (2)The bolts or the ring are damaged (3)The lining board of the crushing cone or the fixed cone is not circular,so the impact is produced	(1)Fasten the bolts or pour zinc alloy again (2)Dismantle the adjust ring to change the bolts or the ring (3)Check the roundness of the lining board when installing,when necessary,-mechanical processing can be used
The amount of large-sized ores in the final products increases.	lining board of the crushing cone is abraded.	Reduce the fixed cone to decrease the gap
The crusher suddenly stops working with load.	(1) The oil temperature rises and the oil level or the oil pressure is too low so that the relay malfunctions. (2) The oil pump or the equipment that has chain reaction with the crusher breaks down. (3) The external power is down. (4) Large-sized non-crushable materials go into the crushing chamber and get stuck	(1) Check the oil temperature, oil level, oil pressure and the chain equipment, find out the cause and eliminate it. (2) Open the electric switch, remove the ores inside the crushing chamber, and start the machine by rule after the power is back. (3) Use gas cutting method to clean the non-crushable materials that are stuck in the crushing chamber.

Accessorial tools

No.	Name	Quantity	Application	Remark
1	Lifting bolt	1	Lift and install the crushing cone	
2	Lifting hook	1	Install the low tray,disk,middle disk and low disk	
3	Tools for installing eccentric bushing	1	Lift and install the eccentric bushing	



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