

Mobile Grinding Media Loader

Operation and Maintenance Manual



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Preface

Dear user:

Thanks for using the mobile grinding media loader which developed and manufactured by our company. Please read this guide carefully before you installing these equipment.

After receiving the goods, please check everything we had sent to you by the goods list , properly store them and install the equipment.

We are so heartily welcome your advice and suggestions. We also very welcome you to visit our company.

1. Safety manual

1.1. Remark of symbols and attention

1.1.1. Dangerous symbols



The symbols indicate that all the important security guides in this operation manual are related to operators' lives. So it is very important to abide the rules and pay extremely attention to them. Ensure every operator to be familiar to the security guides. Also, follow the main rules or local equivalent.

1.1.2. Caution mark



Caution

There is a potential danger. If you expose yourself to this danger, death or severe injury may be the consequence.

1.1.3. Attention



Attention

There is a danger. if you expose you expose yourself to this danger,you may suffer injury.

1.2. Security guide

1.2.1. Summary

The machine and its main parts have rings or special points for hoisting. It is indispensable to use these points for handling during the Assembly or maintenance; otherwise there is a risk to turn over the piece or settling of the improperly utilized points for the anchoring, because not dimensioned for this purpose.

The machine utilization:

The user must follow scrupulously the above precautions, particularly during the adjusting and starting-up phases of the machine, as to make the action easy one try to by-pass the safety precautions.

All adjustments and/or tightening of the various parts must be executed with stopped machine. It is very dangerous to execute the adjustments during the running of the machine or simply to check the correct position of the components. All maintenance operations:

- oil and grease change/filling
- replacement of broken or worn parts

must be executed with stopped machine.

Before executing the above mentioned operations, the operator must check that, for an any reason, machine could start in automatic running.

It is forbidden to get on the running machine because this action is very dangerous. The user should pay special attention to the to the feeding zone of the machine: this area can not be barred by fixed or mobile protections because it must allow the material feeding, therefore this is a critical and dangerous point.

The manufacturer is not responsible for damages to people or things caused by non-observance of these rules and by replacement of spare parts with no-original components of which is not guaranteed the correct

and complete coupling with the machine.

It must be ensured that every person charged with the assembly, operation, and maintenance of the machine has read and understood this operating manual before commencing work.

In addition to general safety rules, which should be observed with the machine, the following safety directions and precautions are of special importance.

- When operating this unit, the operator must employ safe working practices and observe all related local work safety requirements and ordinances.
- The owner is responsible for maintaining the unit in a safe operating condition. Parts and accessories shall be replaced if unsuitable for safe operation.

If any statement in this book, especially with regard to safety, does not comply with local legislation, the stricter of

the two shall apply.

Machine shall be lifted only with adequate equipment conformity with local safety rules. Loose or pivoting parts shall be securely fastened before lifting. It is strictly forbidden to dwell or stay in the risk zone under a lifted load. Lifting acceleration and retardation shall be kept within safe limits.

1.2.2. Basic Operating Requirements



Don't touch motor, junction-box, or other devices with high-voltage terminals. Otherwise, danger of electric shock will appear.



Don't touch switch with wet hand. Otherwise, electric shock will appear.

Operators should be very familiar with the location of emergency stop button, so that a stop can be immediately realized when emergency appears.

Ground of worksite must keep clean and dry to avoid slipping accidents. No water or oil on ground.

Before operating the switch, please make sure and no mistake.

Don't touch the switch randomly.

When power is troubled, cut off the switch of main circuit immediately.

Recommended hydraulic oil, lubrication oil and grease, or approved equivalent oil should be used.

Fuse-wire with suitable rated current value should be used.

Don't change parameters or other electrical settings. If really need to change, original set values should be recorded, so that values can be restored when necessary.

Don't stain, scrape, or remove caution plate. If letters on caution plate not clear or disappeared, new caution plate should be purchased from supplier.

1.2.3. Requirements before switch on power



If insulation skin of cable or soft wire damaged, danger of current leakage or electrical shock will appear. So, carefully check the wire before operation.

See relative instruction plate for information of lubricating points, oil types, and oil volume.

All switches and electrical components should operate smoothly. Carefully check their movement.

Check the volume of coolant, and fill coolant if necessary.

1.2.4. Routine Inspection

Check motor, gear-box, and other components to see if abnormal noise exists.

Check lubrication of all rotating parts.

Check the status of protection hood, safety and protection devices.

1.2.5. Operation

Don't wear gloves while operating the switches. Otherwise, false operation might appear.

1.2.6. Preparation before repair

No any repair without approval.

Parts, and easy-damaged parts (including seal, bearings, oil or grease, etc.) should be replaced according to pre-arranged schedule.

safety protection measures specified in INSTRUCTIONS must be carefully red.

All contents of INSTRUCTIONS including operating principle, structure, and cautions must be carefully read and understood.

1.2.7. Repair



Repair work must only be carried out by skilled persons. Before starting repair, ensure that the machine cannot be switched on accidentally or by unauthorized persons. During repair, a visible caution plate indicates “In Repair, No Touching” should be placed near the machine.



Power must be cut off during maintenance or repair work.

Electrical repair work must be carried out by skilled persons. Meanwhile, closely keep in contact with project manager.

Lead limit device, limit switch, and some other interlocking devices cannot be disassembled or changed.

Fuse-wire, cables, and some other parts should be purchased from quality producers.

1.2.8. Treatments after repair

After repair, clean worksite and remove waste oil or water from all stained parts of machine.

All dismantled parts and removed waste oil should be kept away from machine, and ensure safety.

Safety operation must be checked by repairman.

Record repair and checking data for future reference.

2. General

2.1. The key technical data

The key parameters of the mobile grinding media loader, which includes mobile hopper and mobile apron feeder, are in sheet 1.

Refer to relative drawing for the detail of technical.

Sheet 1

Item	Size	Capacity	Motor power	Remark
Mobile Vibrating Hopper		2.5m ³	Vibrating motor kw	
Mobile Apron feeder	800x7000m	10tph	Conveyor motor 2.2kw Hydraulic pump 1.5kw	

2.2. Basic instruction

This manual is a component of the supplying equipment, it should be kept near the equipment for convenient to use when installing, operating or maintaining.

Requirements of operation environment::

Temperature: -20℃ ~ +40℃;

Humidity: ≤50% (at 40℃), ≤90% (at 20℃)

Altitude: ≤1000m

3. Equipment's principle & structure

3.1. Equipment's characteristics & principle

3.1.1. Characteristics

The mobile grinding media loader includes two modules, one is the mobile hopper, another is the mobile apron feeder.

Modules makes it easy to assemble the equipment at different using site.

The mobile feature makes it easy to move modules between sites of use, and the size reduced equipment is suitable for moving in the compact plant.

The lift/down feature of the apron feeder makes it easy to suitable for all kinds of ball mill.

3.1.2. Principle

The grinding media will be fed into the mobile hopper by shovel, then be discharged to the apron feeder, the flow will be controlled by the vibrating motor and needle gate.

apron feeder is U type, and there are some dam plate installed inside of the U trough, so the grinding media will be kept in the U trough and lift with the moving apron, feed into the ball mill at last.

3.2. Structure

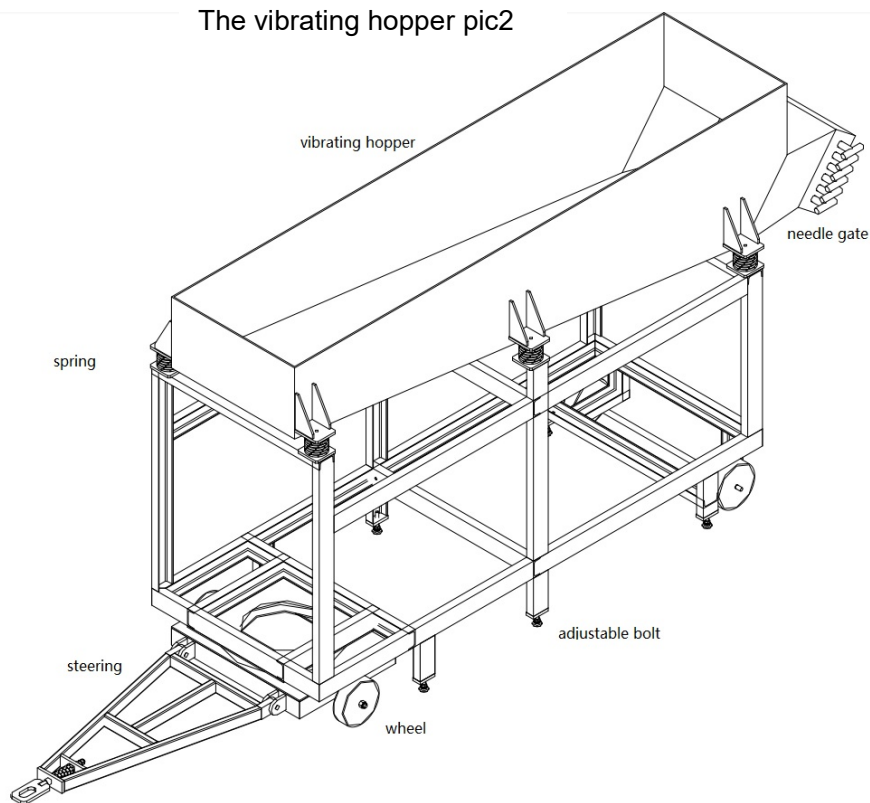
The mobile grinding media loader includes the mobile hopper and the mobile apron feeder, The inlet of apron feeder will be jointed to the hopper outlet.

The assembled mobile grinding media loader pic1.



3.2.1. Mobile vibrating hopper

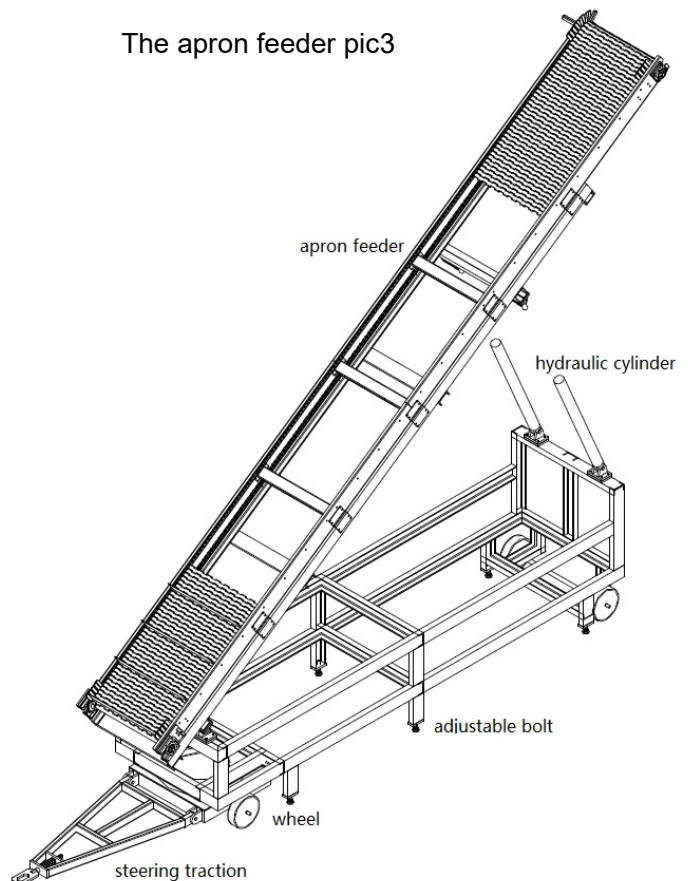
The vibrating hopper includes hopper, vibrating motor, spring, needle gate, support frame, steering traction device, wheel and adjustable bolt. The illustration as follow pic2.



3.2.2. Mobile Apron conveyor

The apron feeder includes apron feeder, lift/down device, support frame, steering traction device, wheel and adjustable bolt. The illustration as follow pic3.

The apron feeder pic3



4. Transportation and storage

- Please handle it with care when load and unload, it shall be avoided collision and rain. Other transporting requirements shall according to GB standards.
- Requirements of storage environment: temperature $-25^{\circ}\text{C} \sim +55^{\circ}\text{C}$.



Waterproof and moisture-proof, can not be stacked in the open air!

5. Assembly and its requirements

Checking the main parts before Assembly:

- any distortion during transportation.
- Basic dimensions
- Using field clearing & leveling
- Rotate the mill manhole to the loader side
- Preparation work for hoisting and trailer

5.1. Assembly of apron feeder

5.1.1. Assembly of hydraulic device

- Move the apron feed to the beside of the ball mill by trailer.
- then connect the hydraulic cylinder with the apron feeder as pic3.

5.1.2. Connect the apron feeder to the ball mill

- Supply the power to the distribution box as pic4
- Start the hydraulic pump, adjustable the height of apron feeder
- Adjust the tip chute of apron feeder, and plug it into the ball mill manhole.
- Adjust the height of 6 sets of bolts, raise all wheel leave the ground and keep the apron feeder stable and level.
- Test the apron feeder motor without load, check lubrication oil and fiction noise.

Hydraulic device pic3



Distribution box pic4



5.2. Assembly of vibrating Hopper

- Move the vibrating hopper to the beside of the apron feeder by trailer, and slowly align the outlet with the apron feeder inlet.
- Adjust the height of 6 sets of bolts, raise all wheel leave the ground and keep the vibrating hopper stable and level
- Supply the power to the vibrating motor from the distribution box on the apron feeder, and test the vibrating motor.
- Adjust the open size of the needle gate.

6. Inspection, Running and Stop

6.1. Inspection



Only inspection of Assembly is eligible, does the running can be carried on.

- Whether lubricating devices of the speed reducer is normally working.
- Whether rotation direction of main electric motor is correct.
- Indicators in hydraulic system should be sensitive, oil pipes should be expedite.
- Check that whether all bolts are tightening.

6.2. Running



The overall assembly is completed, the assembly site is cleaned up, and the ball mill is ready to be loaded. then run the loading system should be as follow step:

- Start the apron feeder and vibrating motor
- The operator leave the bottom of the apron feeder.
- Ask the shovel operator feed the grinding media into the vibrating hopper slowly, and observing the system operation to ensure the equipment and personal safety.

6.3. Stop



Stop the loading system should be as follow step:

- All grinding media in the system should be fed into the mill.
- Stop the apron feeder and vibrating motor, down the apron feeder to min. Height.
- The disassembly process is the opposite of the assembly process

7. maintenance

- Equipment lubricating. Refer to sheet 2.
- After operation a month, the first adding lubricating oil must be replaced, and add fresh oil. If the equipment has stopped for a long time and environmental temperature is lower than 10℃, lubricating oil in the equipment should be expelled out.

sheet 2

lubricating points	period	lubricant	
		lubricant name	Lubricant type
Gearbox	One year	Medium load industrial gear oil	L-CKC-150
Hydraulic station	One year	N46 anti-wear hydraulic pressure oil	Q/SH037.102-88
Bearing		Lithium-based lubricant grease	GB7323-87

8. List of spare parts (excluded in contract)

sheet 3

Item	Name	Quality	Remark
1	Apron plate	20sets	
2	Chain	7m	
3	Dam plate	14sets	
4	Wheel	6sets	
5	Motor of apron feeder	1sets	
6	Apron feeder bearing	4sets	
7	Steering traction bearing	1sets	