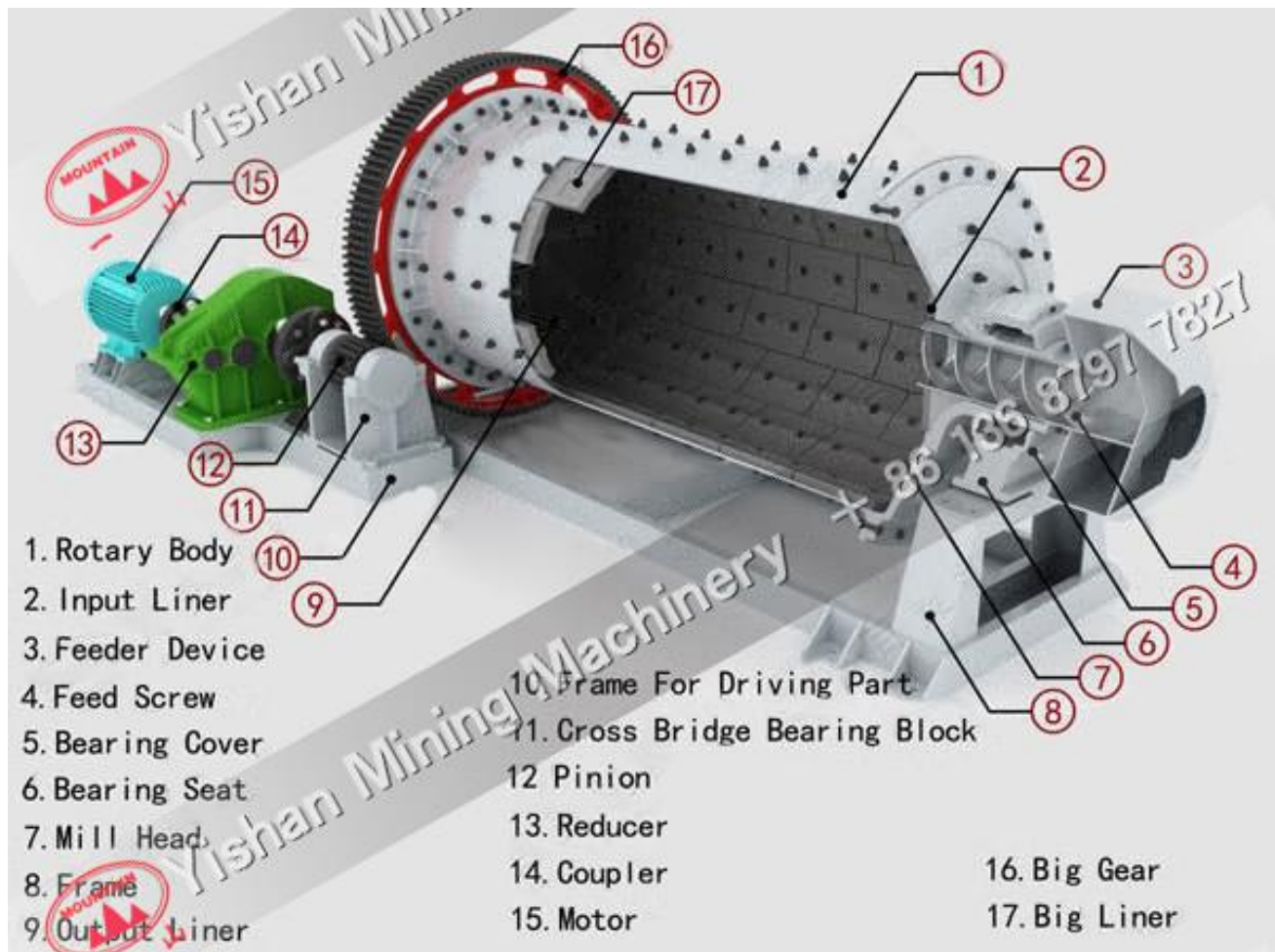


Ball mill



1、 Purpose and use scope

Ball mill is the material being broken, and then smash the key equipment. Mill widely used in cement, silicate products, new building materials, refractory materials, fertilizer, black and non-ferrous metal processing and glass ceramic production industry, for all kinds of ores and other materials may be grinding of dry or wet grinding.

2、 Working principle

This machine is a horizontal cylinder rotating device, outer gear transmission, the warehouse has stepped lining board or corrugated liner, built in different specifications of steel balls, the rotation of the cylinder to generate centrifugal force will bring the steel ball to a certain height after the fall, the material produces severe impact and abrasive. Powder through the discharge grate discharge, then finish grinding operation.

3、 Structure

The equipment consists of feeding, discharging part, turning part, a transmission part (reducer, small transmission gear, motors, electrical control) and other major parts. Hollow shaft with steel castings, the liner is detachable, rotary gear hobbing with casting, cylinder liner wear studded body, has good abrasion resistance. The machine running stable, reliable work.

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4、Installation and adjustment

1) The basic requirements of installation:

- A、Ball mill should be installed on a solid concrete foundation;
- B、Ball mill cylinder should be installed after the ground with sufficient height, so as to facilitate the replacement of cylinder liner and grinding body, and a screw bolt lining board;
- C、Our generation base map, there are parts of a machine center line and the center line and the installation of anchor bolt anchor bolt size, random supply, base map size only remaining user base design reference, not for construction of.

2) General requirements for the installation

- A、Machine parts are in the transport loading and unloading damage, such as damage should be trimmed.
- B、Machine parts are in the transport loading and unloading damage, such as damage should be trimmed.
- C、All the connecting bolts should be uniform, firmly tightened。
- D、Level check ball mill level, both ends of the horizontal shaft neck of the error is not more than 2 mm.
- E、In strict accordance with the procedures for ball mill electrical grounding.
- F、 ϕ 1200, ϕ 900 to start directly, for more than ϕ 1500 of star delta starting, the user should according to the load and power capacity for electrical design and installation of wiring.

3) Adjustment of the machine

A、Empty running

After ball mill installation should be carried out 2 hours of empty empty operation before the operation, should be generally examined once all parts are properly installed, and pay attention to the following points:

- Check all the connecting bolts are tightened, the lubricating oil is sufficient.
- Check the electrical wiring is correct, whether on the safe side, whether the safety grounding.
- Actuate the ball should pay attention to the direction of rotation of the rotating spoon set.

B、Load operation

Running no-load as well, can be used to load test machine. Load should be increased gradually, running, the cylinder shall be loaded into the material quantity specified load 40%, run 2-44 hour, then every 1 hours until 20% increase in load, full load, full load and then continue to run the 8-12 hours.

C、Load operation shall conform to the following requirements, can be formally put into production.

- Cylinders in the screw hole into the hole, and the flange is not allowed to have water leakage phenomenon.
- Transmission parts no abnormal sound.
- Lubrication without flaw.
- Reducer gear oil temperature not exceeding 75 Celsius degree.
- Main bearing the highest temperature shall not exceed 60 Celsius degree.
- Stable gear transmission, the machine had no drama vibration, liner without knocking.
- No special fluctuation energy.
- Yield and material particle size to meet the requirements.

5、Use and maintenance

1) Requirements for the use of ball mill

- A、Use unit should according to the actual situation formulation of ball mill operation system, so as to

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ensure the normal operation and safety production of ball mill.

B、 Before starting the machine should be strictly check the cylinder liner are intact, all bolts shall be tightened, grinding body loading capacity should be consistent with the requirements, lubricating device, electric equipment, auxiliary equipment must be working.

C、 Should be timed to cylinder body abrasive body.

D、 The rotation should always pay attention to whether it meets the requirements of the discharging granularity.

E、 Lubrication for gear oil should ensure clean, and often to check the oil surface position (see compliance with standard oil), general oil temperature shall not be higher than 40 Celsius degree, the highest temperature shall not exceed 75 Celsius degree.

F、 If ball mill stop working for long-term, it should support except for feeding and discharging part within the remaining abrasive, and clean the barrel and other parts of the aggregate.

2) The following conditions ball mill must stop.

A、 Transmission of the abnormal sound and shock she advised.

B、 The occurrence of safety accidents.

C、 Manhole cover the cracks or seal failure.

D、 The cylinder was found to have cracks.

E、 Attachment bolt looseness.

F、 Electrical auxiliary equipment failure or lubricating oil temperature is higher than the prescribed.

G、 By grinding materials supply.

H、 Cylinder liner off.

I、 Found foundation cracks or sink.

3) Maintenance

A、 Ball mill in the process of operation, does not allow for the maintenance and repair. The transmission part shall be free gas.

B、 Every week to check a liner bolts are loose.

C、 To open into the bore liner wear inspection every half month.

D、 Monthly repair, including temporary emergency repair, mainly small change, minor wearing parts, such as the lining board, a mine feeder spoon head, repair all broken.

E、 Once a year in the repair of equipment, parts of major cleaning and adjustment, replacement of large number of vulnerable parts.

F、 According to the specific circumstances, in addition to finish, small tasks, focusing on the main parts for repair and replacement.

6、 Wearing number

Number	Wear Parts	Material	Number	Wear Parts	Material
1	Elliptic heavy head bolts	A3	8	Elliptic countersunk head (long)	A3
2	Spoon head	ZGMn13	9	Elliptic countersunk head (short)	A3

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3	End lining board	ZGMn13	10	Grid grid board	ZGMn13
4	Elliptic countersunk head	A3	11	square head bolt (long)	A3
5	Scaleboard (long)	ZGMn13	12	square head bolt (short)	A3
6	Scaleboard (short)	ZGMn13	13	Feeding bushing	Ht-200
7	Into the hole lining board	ZGMn13	14	Feeding bushing	Ht-200

7、Ball mill ball specifications and weight reference table

Unit: t

ball machine	Steel ratio						The maximum weight of single ball
	30%		30%		40%		
	Norms	Weight	Norms	Weight	Norms	Weight	
Φ 750*1500	Φ 80	0.2	Φ 60	0.2	Φ 40	0.2	0.6
Φ 750*1800	Φ 80	0.2	Φ 60	0.3	Φ 40	0.2	0.7
Φ 900*1800	Φ 80	0.5	Φ 60	0.4	Φ 40	0.4	1.3
Φ 900*2400	Φ 80	0.7	Φ 60	0.5	Φ 40	0.5	1.7
Φ 1200*2400	Φ 80	1.3	Φ 60	1.3	Φ 40	1.4	4
Φ 1500*3000	Φ 100	2.5	Φ 70	2.5	Φ 500	2.5	7.5
Φ 2100*3000	Φ 120	5	Φ 100	5	Φ 80	5	15
Φ 2100*3600	Φ 120	7	Φ 100	6	Φ 80	6	19
Φ 2700*2100	Φ 120	7	Φ 100	7	Φ 80	6	20
Φ 2700*3600	Φ 120	11	Φ 100	10	Φ 80	9	30