Shaking Table

Strong reliability and Safety-engineered for all types of ores

Contents

Fote Machinery Co., Ltd.（Fote）is a joint-stock mining machinery manufacturing enterprise integrated in scientific research, production and marketing. Equipment for sale includes five series: the crushing equipment, sand making equipment, concentrating equipment, milling equipment and building materials equipment.

Besides, we can provide project customized design and flow sheets for customers. We manufacture equipment with high reliability and long service life, providing you with sincere customer service.

Company profile

Traditional shaking table surface is made of wood.

However, practice has proved that the wooden shaking table has a short service life. It is prone to deformation and needs frequent maintenance. Besides, the shortage of raw materials like wood lacquer makes it difficult to meet the development needs.**For this reason, FTM has developed a new 6-S type shaking table, which is made of FRP.**

FRP shaking table

The purpose and application of FRP shaking table

The 6-S shaking table is a gravity beneficiation equipment and has the same mechanism as the wooden shaking table. It is used to sort tungsten, tin, tantalum, niobium and other rare metals and precious metals ores. It can also be used for sorting iron, manganese ore and coal. When processing tungsten, tin and other ores, the effective recovery particle size range of the shaker is **2-0.02 mm**.

ungsten

Tin

Tantalum

Niobium

It can be used for roughing, concentration and scavenging to separate coarse sand (2-0.5mm), fine sand (0.5-0.074mm), sludge (within 0.074mm) and other grain sizes.

FRP shaking table has 7 outstanding performances:

1. High rigidity and strength, small deformation;

2. Low water absorption and no weight gain;

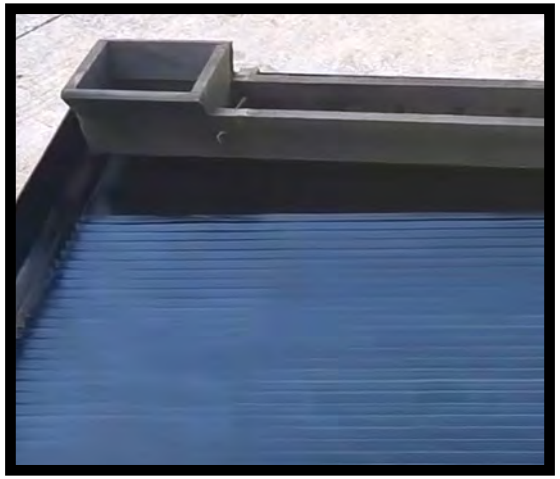
3. The work surface is not easy to damage, and has good wear resistance;

4. No moisture absorption, no swelling, no mold, no insects;

5. Resistant to chemical corrosion, acid and alkali, eliminating the need to avoid chemicals in the slurry ;

6. Good weather resistance, stable shape, and no cracking;

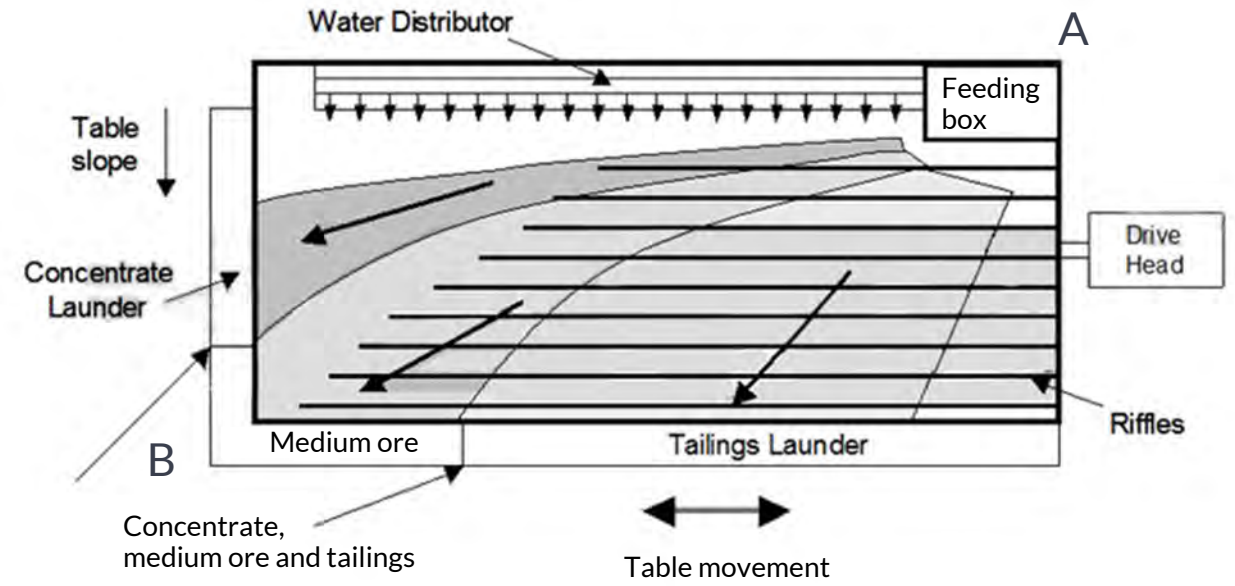
7. It retains the assembly dimensions of wooden bed surface and two interchangeable installations.



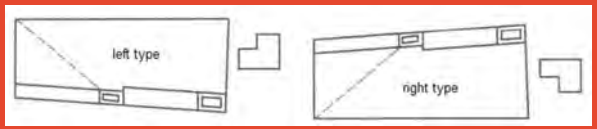
The principle of 6-S shaking table

The beneficiation process of shaking table is carried out on the inclined bed surface with riveted strips. The ore particles are sent from the upper corner of bed and then washed by water in the lateral direction. Due to the gravity force, water impact, inertia and abrasion (generated by the reciprocating asymmetric movement of bed surface), particles are layered according to the specific gravity and particle size, and move longitudinally along the bed surface and move laterally along the inclined bed surface.

Therefore, the particles with different specific gravity and particle size gradually flows down in a fan shape from side A to side B along their respective moving directions. Finally, they are discharged from concentrate and tailings areas respectively. **That's how you get the concentrate, medium ore and tailings.**



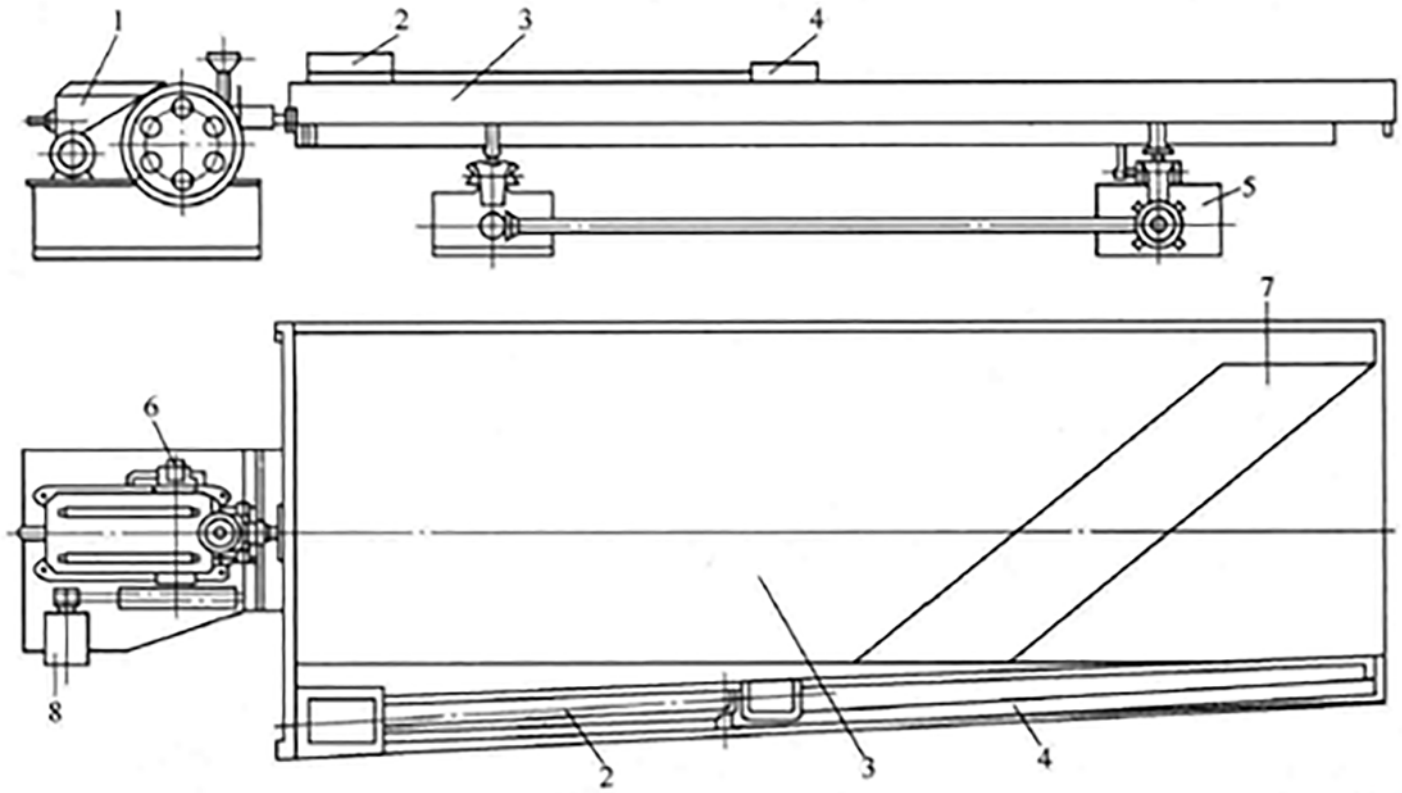
According to the different feeding positions, shaking table can be divided into two types: right shaking table and left shaking table.



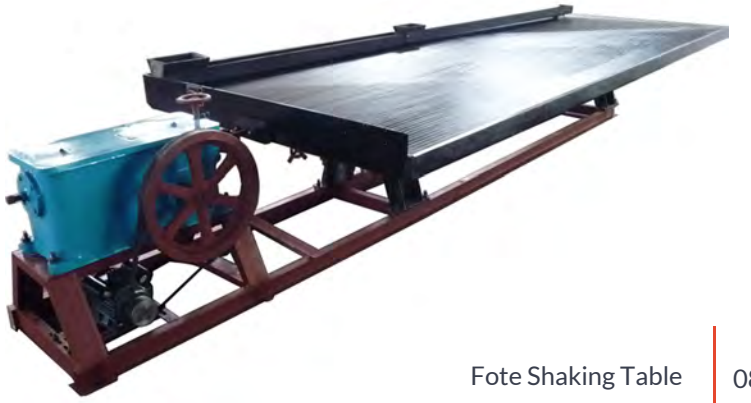
6-S shaking table has a high bonanza ratio, high sorting efficiency, easy to take care of and convenience to adjust the stroke. When changing the transverse scope and stroke, the bed surface can still be balanced. The spring is placed in the box, the structure is compact, and the concentrate and tailings are obtained at one time.

The structure of 6-S shaking table

6-S shaking table is mainly composed of 8 parts: bed head, motor, slope regulator, bed surface, mine tank, water tank, bed bar and lubrication system.

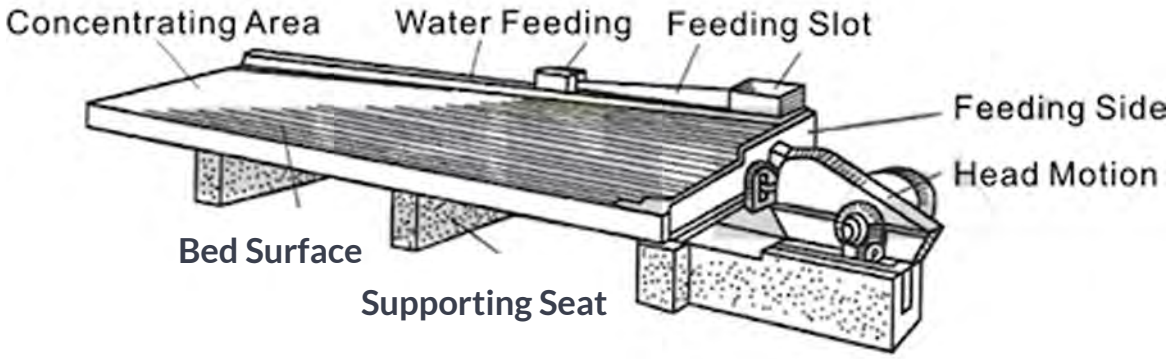


1. Bed head
2. Mine tank
3. Bed surface
4. Water tank
5. Slope regulator
6. Lubrication system
7. Bed bar
8. Motor

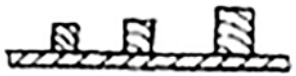


Bed surface

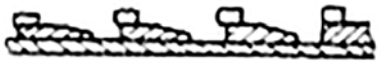
The bed surface of 6-S shaking table is made of polyurethane glass fiber reinforced plastic wrapped steel frame, the working surface is a special wear-resistant layer.



6-S shaking table is divided into three types: rectangular bed bar for coarse sand, trapezoid bed bar for fine sand and groove bed bar for Sludge.



Rectangular bed bar



Trapezoid bed bar

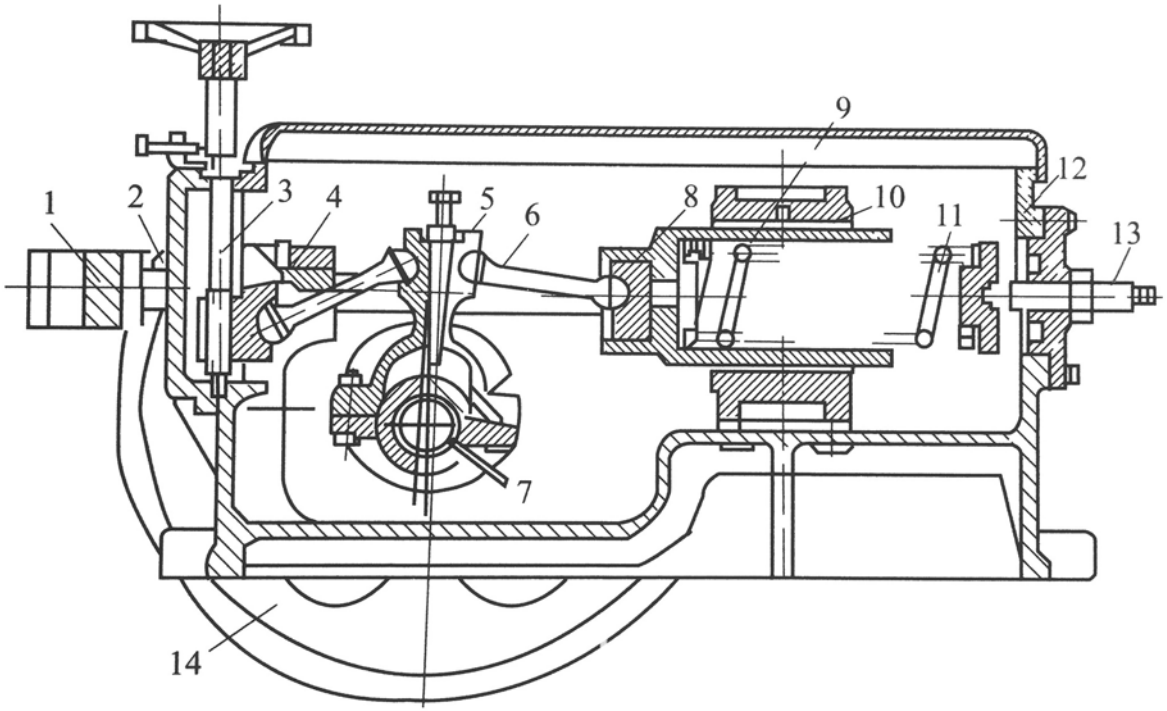
Groove bed bar

Eccentric linkage mechanism (6-S bed head)

The longitudinal reciprocating movement of bed surface is realized by a crank connecting rod transmission mechanism.

The large-motor drives the crankshaft (7) rotates via a belt drive pulley (14), then the rocking rod (5) will be on the next movement. When the rocker moves down, the toggle plate (6) pushes the rear axle (11) and reciprocating rod (2) for backward movement, and the spring (9) is compressed.

The bed surface is connected by the linkage seat (1) and reciprocating rod, so in this case, the bed surface makes backward movement. When the rocking rod moves up, due to the tensile force of spring push, the bed along with forward movement.



1. Linkage seat 2. Reciprocating rod

3. Adjustment screw

4. Adjusting lubricating block

5. Rocking rod 6. Toggle plate

7. Eccentric shaft 8. Toggle plate seat

9. Spring 10. Bearing seat

11. Rear axle 12. Box body

13. Adjusting bolt 14. Large pulley

As the bed moves forward, the angle between the toggles changes from large to small, and the horizontal movement peed of the endpoints of toggles changes from small to large. Therefore, the forward movement of bed surface changes from slow to fast. When the bed surface moves back, it changes from fast to slow to cause an arithmetic movement. This ensures that the material on the bed surface moves forward and is sorted according to specific gravity.

The bed surface includes two types: lacquered ash-engraved groove bed surface and rubber bed surface.

The lacquered ash carved groove bed surface is used to sort fine mud. Rubber bed is used to sort coarse ore. The surface of shaker used to select fine mud has a downward slope of about 50 degrees in the longitudinal direction, and the shaker for coarse sand has an inclination in the longitudinal direction and is raised at the end of the concentrate. The size of the longitudinal gradient is adjusted by the bolts on the support mechanism.

Rocking support and slope adjusting mechanism

The bed surface is supported on the slope adjusting mechanism with a rocking support.

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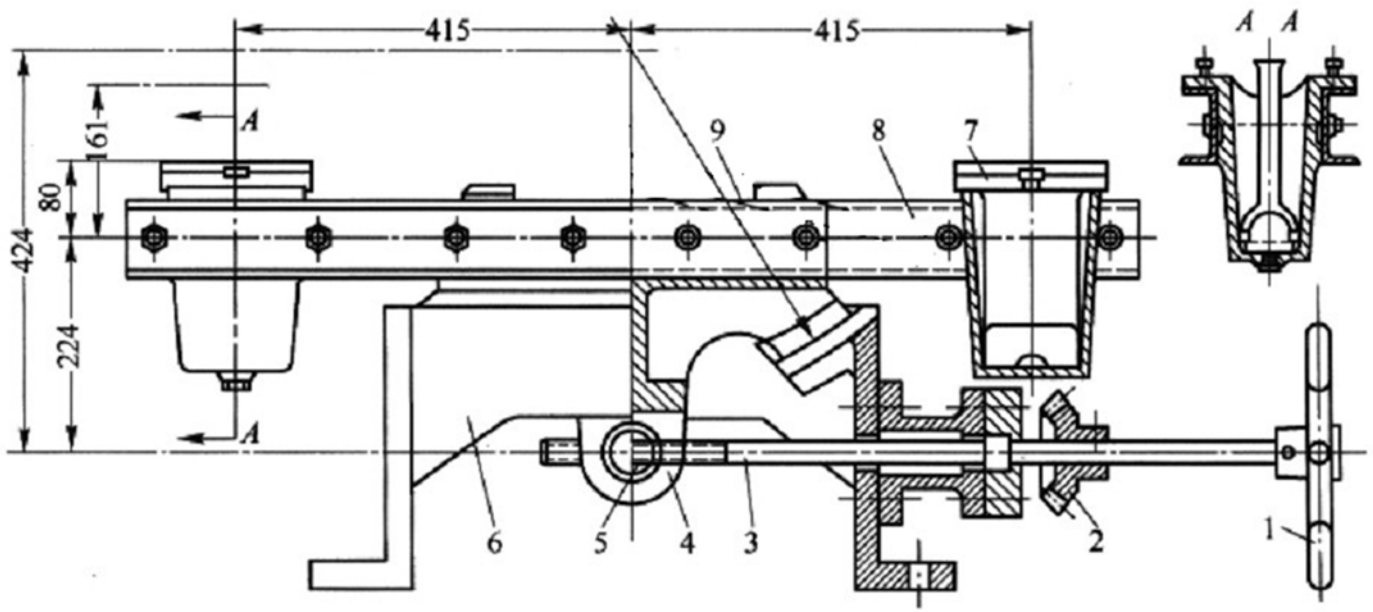
support is fixed on the adjusting seat plate with channel steel. When the adjusting seat plate is rotated on the saddle seat through the adjusting screw rod by the handwheel, the inclination of bed surface can be adjusted.



1. Handwheel
2. Bevel gear
3. Adjusting screw rod
4. Adjusting seat plate
5. Adjusting nut
6. Saddle seat
7. Rocking support
8. Channel steel
9. Bed bar

Installation and debugging

1. Product quality inspection before installation: the user should carry out inspection before installation. Each part of bed surface should meet the requirements of the drawings. The parts should be complete and the appearance should be intact.

2. Install the connector and four connecting blocks in front of the hoisting bed, adjust the height and accurate position, and the installation center of the bed surface is consistent with the center of the bed head connector.

3. When hoisting, the side plates should be prevented from being locally squeezed and deformed and should not collide with the bed surface.

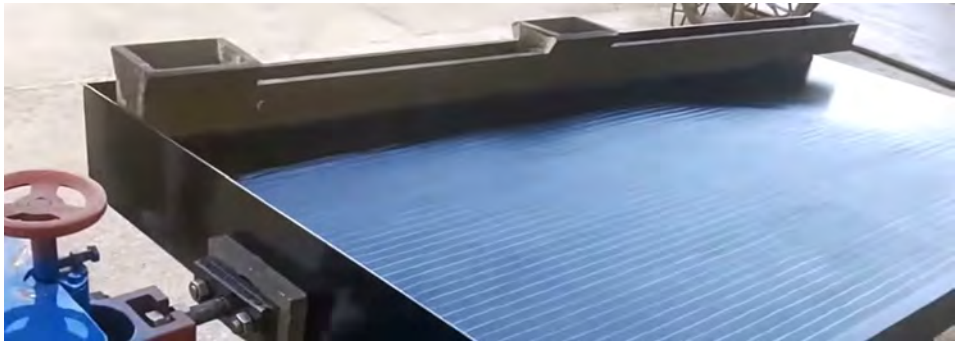
4. After the bed surface is placed, the holes of connecting screws should be aligned, with proper tightness, and the gap between the support and the connecting part should not be too large to prevent noise and wear.

Installation and debugging

5. After the installation, shaking table needs to operate without material for 1-2 hours. Check whether the machine runs smoothly, whether the connecting part is loose, whether the lubrication is good, etc.

6. If the machine runs without material soundly, users can feed material to the machine. Then users can adjust the feeding size, feeding concentration, stroke, transverse slope, and flushing water volume. If there is no problem in running the mine for 24 hours, it can be delivered to production.

Operation and maintenance



1. Adjust the sand valve and rising water of the grading box in front of the shaking table operation or adjust the ore separator to control the feeding amount, feeding concentration, and filling water to the ore.

2.Obtain the target stroke by adjusting the stroke handwheel to change the position of toggle base. It changes the motor pulley to adjust the stroke rate.

3. Adjust the slope adjustment handwheel to change the transverse slope of bed surface; adjust the size of the flushing water and the position of water divider, change the flow rate and distribution of flushing water film, and obtain a neat and unfolding concentrate belt.

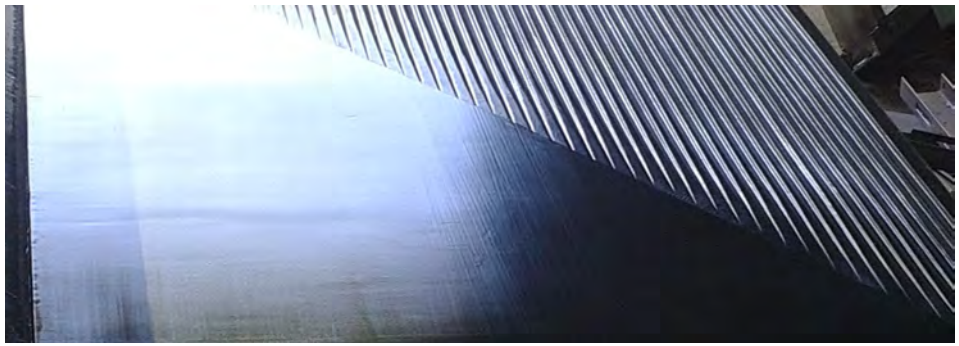
4. Adjust the tightness of the spring, adjust the improper position of the four supporting points, correct the improperly matched stroke system, correct the deflection of the tie rod connection, and eliminate the beating of the bed surface.

Operation and maintenance

5. Check whether the connecting screw is loose, the pull rod position is appropriate, whether the spring is too loose or broken, whether the rocking or sliding surface is in good contact, and whether the bed surface is in contact with non-rocking parts. Find the cause of the abnormal noise and eliminate it.

6. The moving parts of the bed head should be replaced when they are too worn. Mine tank and water tank must be firm to prevent loosening.

7. When the mine is stopped, the bed surface should be rinsed to prevent impurities from oxidizing and scaling.



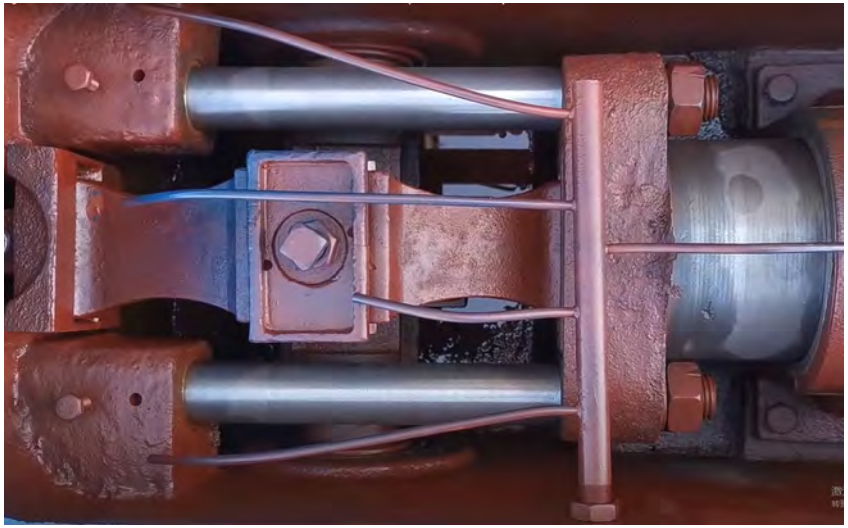
8. If the surface is damaged, it can be repaired with a resin filler agent.

Storage and shipment

1. When storing, it should be placed on the side with the discharge side down; if it is placed horizontally, four supporting seats should be placed flat. No other items are allowed on the bed.

2. It should be packaged and protected during long-distance transportation to avoid impact or heavy pressure. The working surface of the bed surface should be properly protected.

Lubrication

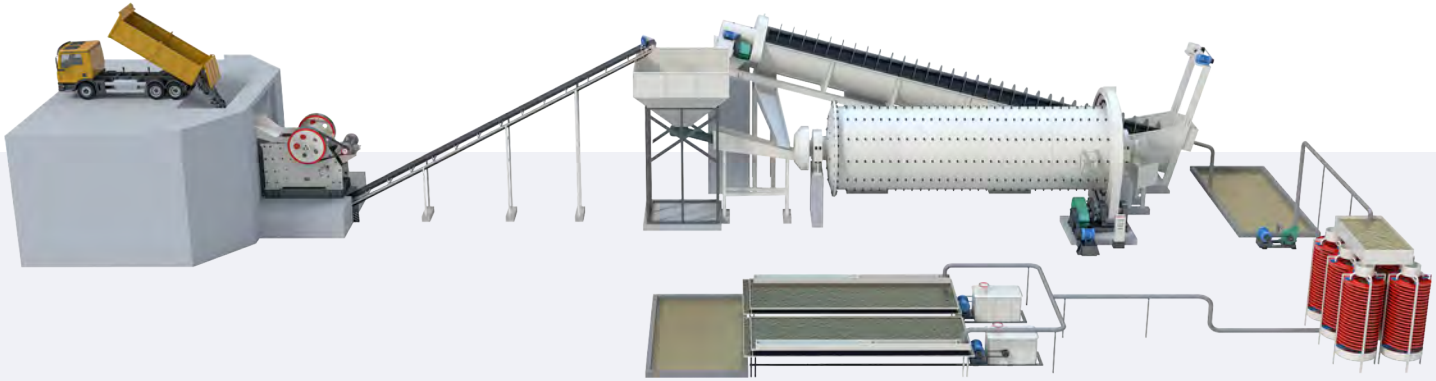


Lubrication of bed head：

Except for the crankshaft cone bearing is lubricated by the oil of the box body, the remaining parts obtain the centralized lubrication by the gear oil pump at the end of crankshaft. The oil pump sends the oil to the lubrication point through the distribution oil pipe in the box. The amount of oil required for each lubrication point can be achieved by changing the outlet diameter size of pipe.

Lubrication of slope regulator：

For the rocking support plate, the lower friction joint surface is lubricated by shaking dilute oil, and the upper friction joint surface is lubricated with grease. The slope adjustment mechanism, such as the bevel gear, screw, nut and supporting are all lubricated with grease.



1. During the trial operation, the spring should not be over-tightened. It should be loosened slightly so that the toggle plate and its supporting seat make a slight impact. At this time, the adjusting bolt should be tightened gradually and the spring should be compressed until the sound stops.

If the spring is too tight, it will increase the wear and power consumption, which may damage the spring. If the spring is too loose, it will easily cause the toggle plate to fall off and damage the parts in the box.

2. In operation, please first notice the rotation direction of bed head pulley. All the machine screws must be tightened before driving. And each lubrication point of bed head must be sprayed with dilute oil in case of any damage of machine parts.

Technical parameters of 6-S shaking table

Name		Coarse Sand	Fine Sand	Sludge
Transmission mechanism		Eccentric linkage mechanism (6-S bed head)		
Supporting mode		Rocking support		
Adjustment slope mechanism		Fixed axis adjustment slope mechanism		
Motor power (kw)		1.1		
Bed structure		Polyurethane FRP, embedded steel frame composite structure		
Working surface		Special wear-resistant layer		
Bed size	Length（mm）	4450	4450	4450
	Driving part width（mm）	1855	1855	1855
	Concentrate part width（mm）	1546	1546	1546
Concentrating area（m^2）		7.6	7.6	7.6
Bed weight（Kilos）		370	370	370
Bed surface direction		Left, right		
Sectional shape of bed surface		Rectangle	Trapezoid	Groove
Transverse slope (Degree)		2.5°- 4.5°	1.5°- 3.5°	1°- 2°
Portrait obliquity (%)		1.4	0.92	—
Bed surface corner (Degree)		32°- 42°	40°	42°
Stroke (mm)		16—22	11-16	8-16

Name	Coarse Sand	Fine Sand	Sludge
Stroke times (times/min)	245, 260, 280	360, 380	240-360
Max. feeding size（mm）	2	0.5	0.074
Feeding amount (t/d)	30-60	10-20	15-25
Feed concentration（%）	20-30	18-25	15-20
Frequency (f)	45-48	48-53	50-57
Water consumption（t/h）	0.7-1.0	0.7-1.0	0.4-0.7
Processing capacity（t/h）	1.0-1.8	0.5-1.0	0.3-0.5

Pulley diameters and stroke times

	Ore type				Sludge type			
	Coarse sand		Coarse sand Medium sand	Medium sand	Fine Sludge	Fine Sludge	Fine Sludge	Sludge
Pulley diameter	92.6	98.3	105.8	117.2	122.9	128.5	136.1	143.6
Stroke times (times/minute)	245	260	280	310	325	340	360	380

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