



**恒昌矿山机械**  
HengChang mining machinery

## The operating instruction of gold centrifugal concentrator



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## **I. Description**

Gold centrifugal concentrator also called knelson concentrator is a new type of gravity concentration equipment, used in the gold mining industry. It is used for the recovery of fine particles of free gold, meaning gold that does not require gold cyanidation for recovery, free minerals that are not recoverable using the traditional techniques of small scale and artisanal miners.

Capacities range from laboratory scale to 150 tons of solids per hour. Beneficiation test shows that the recovery can be 99%, especially for recovering the natural lode ore gold, when 65% material size are smaller than 0.074 mm, the recovery is expected up to 98%. For 0.004 mm size natural gold, the recovery is 97%.

## **II. Application**

It can be used not only for placer gold mining, but also for hard rock mining to recover the natural gold, replacing amalgamation. It is also used to recover gold from the old tailings.

## **III. Working Principle**

The hollow shaft of gold centrifugal concentrator can be driven by electrical motor transmission part through belt driving, making the rotation inner sleeve rotate in a high speed to produce centrifugal force. The slurry will be fed into the rotation inner sleeve through feeding pipe, and the slurry particle will be separated under the action of centrifugal force field. The heavy mineral will be remained in the cell guide of rotation inner sleeve, and the light mineral will be discharged through the tailings launder. After one shift work and stop running, the concentrate will be discharged through the concentrate discharge outlet.

## **IV. Features**

1. High concentrating ratio and recovery for fine gold.
2. Removal of both nonmagnetic and magnetic sands without fine gold loses.
3. Continuous centrifuge bowl with self-cleaning riffles.
4. Environmentally friendly (requires no chemical additives or reagents).
5. Low water and electricity requirements.
6. Low production costs, durable wear parts, minimal maintenance requirements.
7. Compact design requiring less space, easy merged into the existing mining processing.

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## V. Technical Parameter

Model	STL-20	STL-30	STL-60	STL-80	STL-100
Capacity (t/h)	0.2-0.6	5-10	20-35	40-60	80-100
Feeding size (mm)	0-3	0-4	0-6	0-6	0-6
Feeding density (%)	0-50%	0-50%	0-50%	0-50%	0-50%
Backwash water (t/h)	1.5-2	4-6	10-15	17-25	40-60
Output(kg/time)	2-3	10-20	30-50	50-70	100-130
Motor power (kw)	0.75	1.5	5.5	11	18.5
Revolution ®	800	600	460	400	360
Pressure water (Mpa)	0.04	0.12	0.25	0.35	0.4
Dimension (mm)	790x785x790	1180x1140x1250	1970x1670x1750	2300x1800x2200	2500x2000x2400
Weight (kg)	145	400	1300	2000	2500

## VI. Installation and Adjustment

### 1. Preparation and inspection before startup

- Prepare and inspect the motor before use according to the requirements of the motor.
- Check whether the equipment feet are stable.
- Check the tightness of the V-belt. (Test machine has been adjusted before leaving the factory).
- Check for interference of the moving parts of the equipment, and check by manual turning.
- Check whether the concentrate discharge outlet is closed.

### 2. Startup of the equipment

After the preparation and inspection according to the above 5 items, turn on the power, jog the motor, check whether the motor and the equipment are running in the same direction, and check whether the moving parts interfere, and then turn on the power to make the equipment enter normal operation.

### 3. Water feeding of the equipment

When the equipment enters normal operation, open the recoil valve, and at the same time, feed the slurry prepared according to the required liquid-solid ratio.

### 4. Matters needing attention at work

- Monitor the temperature and current of the motor as usual.
- Observe the condition of the moving parts everywhere and check for any abnormalities.
- Pay attention to the slurry-solid ratio at any time and adjust it in time. Performing an annual repair, make large cleaning and adjustment of various parts of the equipment, and replace a large number of wearing parts.

### 5. Equipment shutdown

The equipment works normally to clean up the concentrate once per shift. Before stopping the machine, stop feeding the slurry first, and then stop the machine. After the equipment is stable, unscrew the screw plug of

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the concentrate outlet and flush the concentrate into the concentrate box. The clearing time is 15-20 minutes. Then, tighten the plug and proceed to the next cycle.

### **6. Abnormal shutdown of equipment**

Under special circumstances, temporary shutdown is required. Be sure to stop feeding to the mine first, then stop backwashing, and then stop. However, the downtime should not be too long to prevent the time being too long. (If the downtime is required for a long time, the concentrate needs to be cleaned up and then shut down.) In addition, after the temporary shutdown, the ore slurry must be supplied first, and then backwash water must be given to avoid the loss of gold particles.

## **VII Pictures**



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## VII. About us

**Jiangxi Hengchang Mining Machinery Manufacturing Co., Ltd.** is one of the leading company in mining gravity separator machine designing & manufacturing in China. Up to now, we have developed four major product lines; they are mining milling machine, mining classifying separator, mining flotation machine and the mining gravity separator.

We have three senior engineers and two junior engineers on equipment designing and mining process designing. At the same time, we kept good relationship with some mining research institute and university, such as Jiangxi University of Science and Technology, Ganzhou Nonferrous Metallurgy Research Institute, Hunan Research Institute of Nonferrous Metals, and etc., to improve our designing and production, and also provide technology support for the mining project.

With more than 30 years in mining business, we have accumulated enough experience in gold mining plant, tungsten mining plant, wolfram mining plant, tin mining plant, cassiterite mining plant, coltan mining plant, columbite mining plant, and iron ore mining plant, black/beach sand mining plant designing, manufacturing, installing, commissioning and training. We could provide the customized complete mining solution to our customer.

Our major overseas market is Africa and Southeast Asia, and our products covers 43 global countries, as more and more customers are aware of our quality products and good service, this number is growing fast.

Focus areas:

Mining equipment, vibrating feeder, vibrating screen, crusher, ball mill, classifying separator, leaching tank, flotation machine, gravity separator, shaking table, spiral chute, jig machine, centrifugal concentrator and other mining equipment.

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# About Us

## Jiangxi Hengchang Mining Machinery Manufacturing Co., Ltd

Jiangxi Hengchang Mining Machinery Manufacturing Co., Ltd was established in 1985 with the registered capital of 500,000 USD. We covers an area of more than 30,000 square meters, owning more than 30 types of heavy processing equipments and with an annual sales Of more than 8 millions. We have a professional international level engineer team and a strong R&D department, having been cooperated with domestic and oversea Scientific Research Institutes for many years. As a professional mining machinery manufacturer, we take perfectness as our goal and are willing to make our continuous efforts.



## Customers Visiting Us



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## Why Choose Us ?

OEM / custom make as per customers' requests.

International level engineers team

MORE

Experienced and Advanced mineral processing technology!

MORE

Over 30 years mining machinery manufacturing

MORE

### HENGCHANG ONE-STOP SERVICE:

1. Providing test of your raw ore
2. Complete processing flowchart design
3. Supplying complete line of mining equipments
4. Engineers come to mining site for installation, commissioning and workers training.



## Exhibition Show



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