

Dewatering Screen Design - LZZG

With the increasing use of sand washing machine in sand processing plant, some drawbacks also has risen. One of the biggest drawbacks is that the washed sand is too wet to sale directly. It is needed to dry in the open space for several days. This not only occupies the place, but also reduces economic benefits. So dewatering screen appeared in such a timely manner.



What is dewatering screen?

Dewatering screen is produced to solve the above situation that washed sand is too wet. So it is mainly used to dewater sand and fine gravels (typically 0.074-10mm) prior to stockpiling. Depending on the gradation of product to be produced, dewatering screen will typically produce a final product with water content as low as 12% to 15%, which is dripleless.



Dewatering screen is a common tool, which can not only used in sand processing plant, also can used in mine, ores, clay, slurry, concrete mixing plant, etc. And the feed to dewatering screen can come from a variety of sources, include material washing machine, cyclones, density classifiers, and even directly from classifying tanks.

How does it work?

Dewatering screen adopts dual-motor self-synchronization technology, which means dewatering screen has the vibrating motor with the same performance parameters as excitation source. The motors coordinate with universal eccentric and adjustable amplitude vibrator. When two sets of vibrating motor in the same angular velocity do reverse operation, the inertial force produced by an eccentric block in a particular aspect to repeated stack or offset, so as to produce a great shock, driving the screen box along the straight line track to do periodic reciprocating motion, make the materials on screen mesh from input to output to do gradually vibrate. During the vibrating process the part less than the screen hole (water)

through the screen hole falls, the rest from the output falls, so as to achieve the purpose of classification, dehydration.

Raw material Properties that affect the dewatering effect

To evaluate all material properties that relevant to dewatering before selecting screen is the most important thing.

1. Feeding raw material properties

1.1 Gradation

The most important material property is its gradation, which defines how much water can be bound in the product, also defines how small the openings of the screen have to be.

1.2 Density

The greater difference between the density of solids and liquid, the easier separation.

1.3 Grain shape

The shape of a grain not only defines the surface area, but also the resistance against liquid flow in a material, even defines the capacity.

1.4 Other properties

In addition, some other properties(firmness, abrasiveness, product value, poisonousness)have to be taken into account as well. Particles could get destroyed and increase the fines content during the process, to increase the overall surface area and prevent the dewatering. corrosiveness and abrasiveness will play a important role in the selection of machinery. The value of product will determine how much sense it makes to dewater to a certain percentage.

2. Final product water content

When mentioned the dewatering, the first thing that comes to our mind is the remaining water content of final products. This property mainly decides the whole process. And it also affects whether the products can be transported on a belt conveyor.

3. Machine conditions

The following conditions need to be consider before selecting dewatering screen

Allowable gradation

Allowable solids percentage

Throughput

Efficiency

Economy: investment and operation cost

How to debugging and commissioning the dewatering screen?

1. Adjusting the eccentric blocks of two vibrating motors to the same scale, in addition to, rotary direction of two motors should on the contrary.

2. Examining if the vibrating motor eccentric blocks are in the same scale, if not, examining the spring support whether consistent or not.

3. Raising the discharge hole height or opening hole in feeding hole baffle makes redundant water flow into water tank.

4. After passing the no load commissioning, it can put into load commissioning, time can be adjusted according to the commissioning requirements.

Some customer' s working site that apply to dewatering screen

1. TS1840 dewatering screen in South Africa

Raw material: River sand

Feeding size: $\leq 5\text{mm}$

Capacity: 130-160t/h

Working hours: 8-10 hours per day



2. TS1530 in Vietnam

Raw material: Crushed sand

Feeding size: $\leq 5\text{mm}$

Capacity: 100t/h

Working hours: 8-10 hours per day



3. TS1530 in Australia

Raw material: Crushed sand

Feeding size: $\leq 5\text{mm}$

Capacity: 120-150t/h

Working hours: 8-10 hours per day



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