Sand & Gravel Washing Plant Design

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LZZG **sand & gravel washing plant** includes **crushing**, **sieving**, **washing**, **recycling** and **muddy water purifying**. The recently sand washing plant that we designed is build down the hillside as bellow. After the technicians of our company arrive at the scene, they find that the coordinate points of the user ’ s surveying and mapping mountain body are not in line with the actual situation, and the field surveying and mapping, and comparison with the professional mapping paper, determine the position, provide the user with the overall layout drawing of the production line, the user is satisfactied with the design of the sand and gravel washing plant.

1. Customer ’ s requirements for the sand washing plant

Raw material: crushed mechanical sand
Capacity: 180 tons/h
Water consumption: 250 m^3/h
To wash, dewatering, fines recycling and mudy water recycle

2. Equipments in the sand washing plant

(1) Wash, dewater and fines recycling
Sand washing and recycling machine Model LZ36-120

(2) Muddy water purifying

Thickener S-6000

Press filter G2502-125/2sets

3. sand washing plant design

First step: Achieve sand and gravels washing, fines recycling and dewateringby using sand washing and recycling machine.

Second step: Realize muddy water that discharged from above sand washing and recycling machine purification and separation by using thickener.
Finally step: Press the sludge into mud cake to realize dry pile.

4. sand washing plant process

(1) Sand and gravels enters washing tank of sand washing and recycling machine. When impeller rotates, sand and gravels in washing tank is stirred to cleaning to remove the impurities covering the surface of sand and gravels. After washing, the coarse sand is sent to dewatering screen to dehydration by impeller.

(2) The overflow of washing machine enters tail water collecting tank through pipeline, then is driven into separator by slurry pump to be separated by desander cyclone. After recovering, 0.074-3mm fine sand is discharged to dewatering sieve and mixed into coarse sand uniformly to dehydrate. The discharge port is connected to belt conveyor to transport finished sand to designated position.

(3) At the same time, the sediment suspended content is under 5% processed by separator, discharged into the tailing water tank, then tail water is pumped into thickener for mud-water separation operation. The thickener treats about 80% of tail water into clean water, then directly enters clear water pool through overflow port.

(4) The concentrated mud is pumped into chamber filter press through the bottom of thickener. Then filter press presses the concentrated mud into mud cake to realize dry pile, landfill or develop other uses. After the filter press, clean water enters the clear water tank to realize the recycling of clean water and zero discharge of entire process.

(5) Stones and sand are effectively screened, washed and dewatered in this plant, and muddy water can be recycled use. Lots of avantages of this entire production line has: excellent continuous working performance, convenient maintenance, long service life, easy movement and excellent results. At the same time, it save resources, reduce water consumptio, and ensures no pollution and meets environmental protection requirements.

5. Final effect and expected target that achieved in the sand washing plant design

(1) Final effect
a. Sediment separation recovery and dewatering of solid particles in materials

b. Mud water separation muddy water purification from pre-work

c. Solid waste dry discharge dry discharge and dry heap treatment of solid waste in tail water

(2) Expected target that achieved

a. Realize the recovery and dehydration of solid particles in material: the recovery rate of solid particles above -200 mesh is 80-90%, and the moisture content after dewatering as low as 12-15%. The amount of mud in finished sand is less than or equal to 3%, which is in line with the standard for commercial mixed sand.

b. Realize the purification and reuse of tailing water: the purified tail water suspension is lower than 300mg/L, which is higher than the third-level emission related to tail water discharge in the mining industry in GB8978 Integrated Wastewater Discharge Standard. The water reuse rate is greater than 90%, in line with national standards for water reuse in industrial mining, mineral processing, etc.

c. Realize dry pile and dry discharge of solid waste: the moisture content of pressure-filtered mud cake is less than 20%, which meets the national standards for dry storage or mixed landfill moisture content of solid waste.

Our **sand washing plant** has perfectly solved the problem of sand washing, separation, and tail water recycling. LZZG provides one-stop sand and gravel washing plant design, welcome to consult the relevant information of the sand and gravel washing plant by free: **export@lylzzg.com**