

Advantages and disadvantages of vertical roller mill

Vertical roller mill (vertical grinding mill) is mainly suitable for ultra-fine powder processing of non-inflammable and non-explosive brittle materials with medium and low hardness and Moh's hardness of 6.



The main disadvantages of vertical roller mills are:

Since the finished product is sent by the wind, the composition of the finished product composition is related to the specific proportion of the material component, which has a certain influence on the quality of the cement grinding.

The technical requirements for the operation and maintenance are relatively high.

(3) The material requirements of the roller sleeve and the grinding table are high, and the pressure sealing of the hydraulic system is strict.

Compared with ball mills, the advantages of vertical mills are:

(1) Strong drying ability. The hot blast stove provides hot air at 450°C and can dry materials with 15% water content.

(2) Simple system. The vertical roller mill has a big feed size (can grind the material with particle size of 5% of the grinding roller diameter: the feed size is generally 40-100mm, and the large vertical mill can reach 120mm), which simplifies the crushing system and saves secondary crushing.

(3) The product particle composition is stable, and the raw material is easy to be calcined.

(4) Since the finished product is delivered by wind, when producing the whole black raw material, the particle size of the coal powder is coarser than that produced by ball mill, and the chemical incomplete combustion heat loss of the coal powder in the vertical kiln calcination process can be reduced.

(5) The fineness adjustment of the product is flexible and convenient. (Adjust the speed of the upper rotary classifier)

- (6) The mill itself is equipped with a powder selection device, which can remove fine powder in time, reduce the phenomenon of over-grinding, and has high grinding efficiency.
- (7) Low noise, environmental friendly. The noise is 20 to 25 dB (A) lower than that of the ball mill.
- (8) Low power consumption. (The power consumption of the system itself is 75% to 80% of the ball mill)
- (9) The metal wear of the unit product is low. The wear is generally only 5 to 15 g/t, and even only 3 to 5 g/t. Therefore, the wearing parts have long service life; the metal powder resulted from metal wear is small, so vertical roller mills can grind the white cement raw material.
- (10) Small footprint and building space: 50% to 70% and 50% to 60%, respectively, of the ball mill system. The capital investment is only 70% of the closed ball mill system.

The ball mill is the key equipment for grinding the material after it has been crushed. The ball mill has low energy utilization efficiency. At present, there is a tendency to replace ball mill with vertical mills and roller presses, but the ball mill has the advantage that the particle shape is approximately spherical, which is conducive to raw material calcination and cement hydration hardening. This is the main reason why most clinker mills still use ball mills.

CHAENG (Great Wall Steel Casting) is professional to manufacture large mechanical parts with long serve lives and excellent properties for ball mill and vertical roller mill. According to users' drawings, CHAENG numerically simulates the casting process by means of CAE software to analyze the molding process, predict and optimize the product quality. CHAENG steel casting parts can match well with the equipment to ensure the operation efficiency of mills.





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