

Vertical Roller Mill VS Ball Mill

Comparison Item	Superfine Vertical Mill	Ball Mill
Energy Consumption	Lower power consumption: Depending on the abrasiveness of the raw materials and the particle size of the product, the power cost can be reduced by 30% to 50% when compared with the ball mill in terms of energy consumption.	High power consumption
Product Flexibility	High-efficiency and flexible regulation of product categories: Ultra-fine product flexible powder with a specific surface area of 9,500 (d97 = 20 μ m) ~ 25,000 (d97 = 10 μ m) cm ² /g can be produced at one time	The ball mill can only produce a single product with a fixed ratio of steel balls
Drying Capacity	Higher drying capacity: The new type of roller mill can introduce a larger air flow, which can feed and dry materials with higher water content	When the ball mill grinds wet raw materials, due to the limited air flow through the ball mill, it is usually necessary to install additional drying equipment in front of the ball mill
Device Configuration Space	Small footprint, the space occupied is only 50~70% of the ball sander	Take up a lot of space
Feed Particle Size	Larger feeding particle size: The feeding particle size depends on the diameter of the grinding roller, and can directly feed larger particle size raw materials without excessive crushing	The ball mill is limited by its maximum steel ball diameter, and can only enter smaller raw materials

Product Fineness	Best end product: CLUM vertical roller mills use high and adjustable grinding pressure to produce large quantities of fine powder	The particle size distribution of the product produced by the ball mill usually has a low proportion of fine powder, which depends on the grinding machine
Particle Size Distribution	A state-of-the-art horizontal airflow classifier mounted on top of the ultra-fine vertical mill to produce a more selective product	Compared with the traditional classifier used in the ball mill, it has a steeper particle size distribution
Product Changeover Time	Different raw materials can be converted to produce different products on the same mill in a very short time	Requires longer purge time
Contamination of Abrasive Materials	High whiteness due to no abrasive media wear	Low whiteness due to abrasive media wear
Grinding Efficiency	High grinding efficiency and low wear: The CLUM vertical roller mill grinds the material with high-pressure wheels	The ball mill uses the collision friction method, so the grinding efficiency of the ball mill is low
Initial Investment Cost	Slightly higher than ball milling	Slight advantage over ultrafine vertical mill
Operating Costs	Very low operating costs due to no grinding media consumption and low power consumption	High operating costs due to consumption of grinding media and high power consumption
Noise	The workshop noise produced is far lower than that of a ball mill	The noise generated is high
Product Whiteness	High whiteness of finished product	If steel balls are used as the grinding medium, the whiteness will be low
Product Particle Shape	The sphericity of the powder particles is slightly poor	Good sphericity
Sensitivity to External Conditions	Sensitive to metal foreign objects	Ball mills are less susceptible to external conditions