HLM Vertical Roller Mill

----Top equipment of blast furnace slag, composite dust and limestone large-scale processing.

High Capacity, Advanced Technology, High Efficiency

Max feeding size: 50mm

Capacity: 5-700t/h

Fineness: 200-325 mesh (75-44μm)

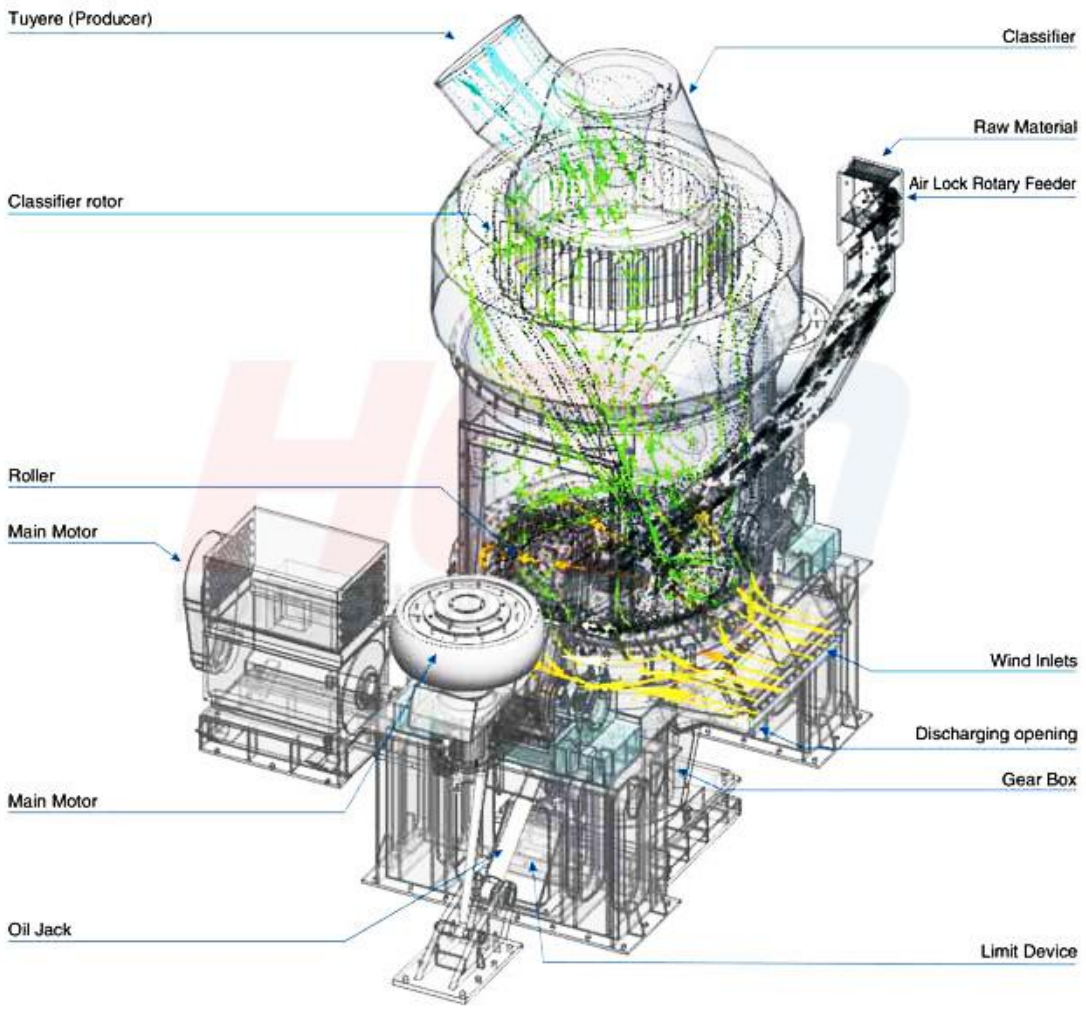
HLM series vertical grinding mill is a kind of advanced pulverizing equipment integrated with drying, pulverizing, powder selecting and conveying. It is applied as a good solution to the technical issue such as low output, high energy consumption and high maintenance cost in the ordinary industry. HLM vertical mill has become the mainstream equipment in the pulverizing industry with the following advantages: efficient grinding, lower power consumption, larger feeding size, adjustable fineness, simple process flow, space-saving, lower noise, smaller air pollution, easy maintenance, lower operation cost, longer working life of wearing parts etc. HLM Vertical Mill is widely applied in power, metallurgical, cement, chemical and non-metal industry, such as cement raw material, blast furnace slag, composite dust, limestone, gangue, gypsum, bauxite, magnesium oxide, wollastonite, zircon sand, diabase, basalt, manganese, powder, coal, barite, calcite, etc.

Introduction:

HLM VERTICAL GRINDING MILL

The working principle of HLM Vertical Roller Mill

The motor drives the reducer to rotate the millstone, the raw material are send into the center of the millstone from the air lock rotary feeder. Under the effect of centrifugal force, the material moves to the edge of the millstone. Material than be ground by the force of the roller and smashed under extrusion, grinding and cutting. At the same time, hot air is blew up around the millstone and bring up the ground material. The hot air will dry the floating material and blow the coarse material back to the millstone. The fine powder will be brought to the classifier, and then, the qualified fine powder will flow out the mill and be collected by dust collector, other coarse powder will be brought down to the millstone by the blade of classifier and be ground again. The circulation like this is the overall process of grinding.



With scientific & reasonable design and its unique advantages, HLM vertical roller mills are applied widely in power, metallurgical, cement, chemical and non-metallic industry, for grinding of various materials, such as cement raw material, clinker, limestone, slag, manganese, gypsum, coal, barite, calcite etc.. The grinding field is wide and grinding type is abundant.

1. Humidity of grinding materials: from materials of 20-30% humidity(such as carbide, lignite, chalk, etc.) to materials of humidity less than 1% (such as cement clinker), wide range of materials.
2. Grindability of materials: from high grindability(such as quartz sand, steel slag, mining slag, pyrophyllite, iron ore etc.) to low grindability (such as gypsum, calcite, etc).
3. Fineness of grinding product: from 2-5mm(such as raw shale for making brich in new wall material industry, sand for construction industry, etc) Product fineness is easy to adjust and simple operation.

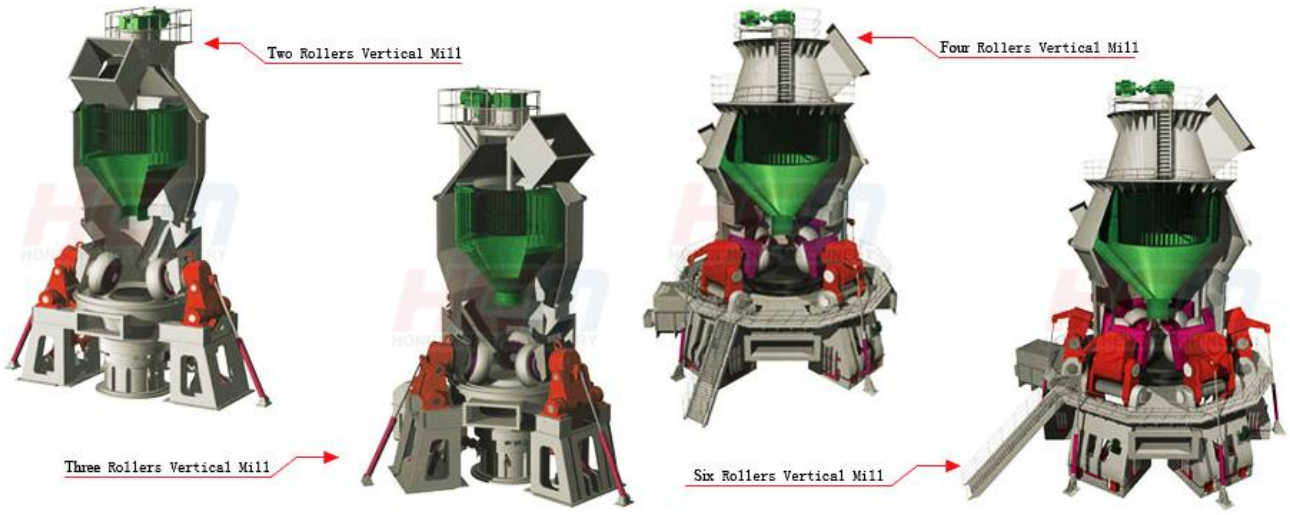
Mill Structure:

HLM Vertical Grinding Mill Structure

HLM Series Vertical Mill consist of main mill, feeder, classifier, blower, pipe system, storage hopper, electronic control system and collecting system.

The Anatomy of HIL HLM Vertical Grinding Mill

HLM vertical Mill uses standard modules to design and fabricate pressurization device. With the increase in mill capacity, there is an increase in roller numbers (we can use 2,3 or 4 rollers, 6 rollers maximum) in proper permutation and combination to form the series of equipment of various capacities with minimum standard parts in order to meet the requirements of different materials, fineness and outputs.

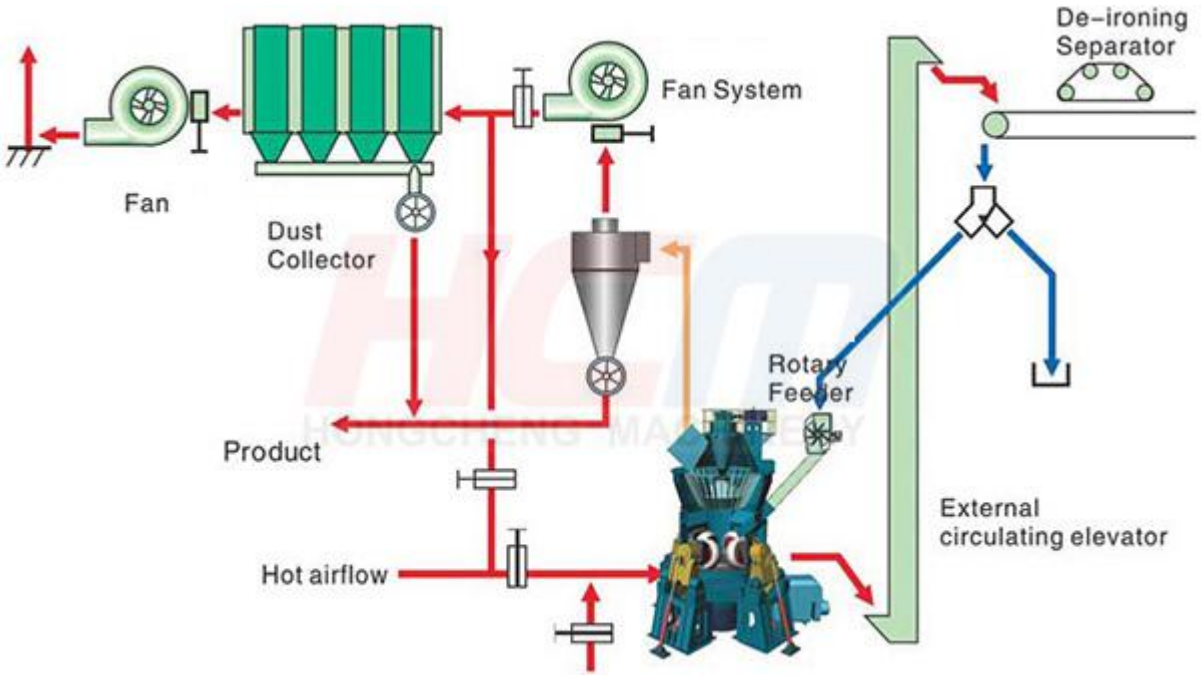


Polytechnic Procedure

According to the layout of bag filter, there are two types of system solutions, i.e. three-fan systems, and two fan systems.

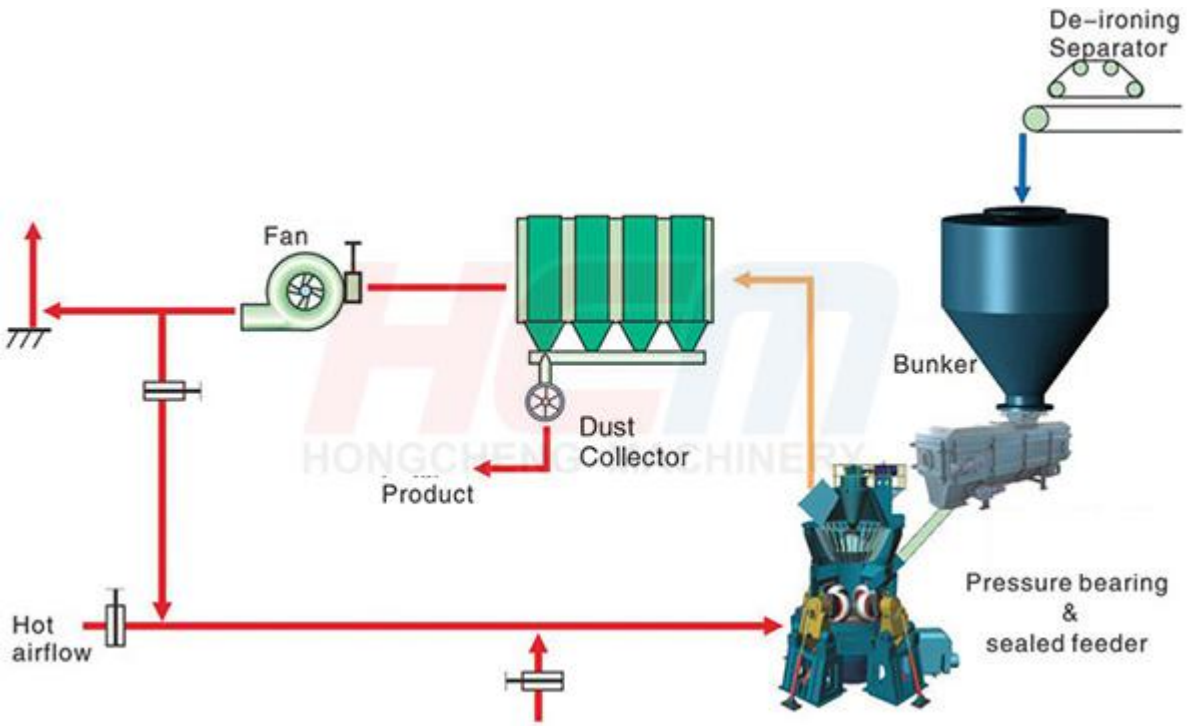
Double-stage filter system (Normally used in grinding of cement raw meal)

A cyclone filter is used for collection of product. This arrangement can help to reduce negative working pressure and air volume of system. Both EP and bag filter can be used as final product collector.



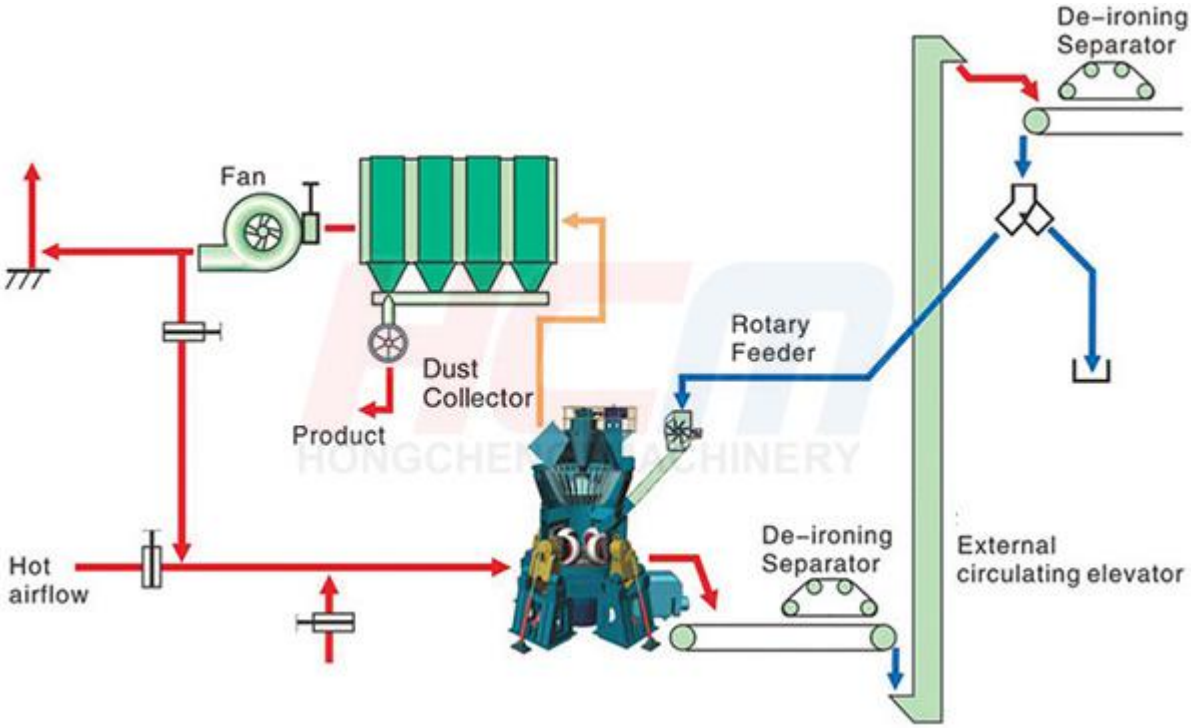
Single-stage filter system 1 (Normally used in cement , metallurgical industry for grinding coal)

Explosion-proof filter is adopted. Gas is sent into filter directly from mill. This system is with less equipments and simple Configuration.



Single-stage filter system 2 (Normally used for grinding cement clinker, mining slag, steel slag, non- metallic mineral, etc.)

High-density EP or bag filter can be adopted. Gas is sent into filter directly from mill. This system is with less equipments and simple configuration.



Main Technical Data:

SPECIFICATION AND TECHNICAL PARAMETER FORM OF HLM VERTICAL MILL

Model Modelo	Grinding table median diameter (mm) Diámetro del Plato de la molienda (mm)	Capacity Capacidad (th)	Mining Slag Moisture Humedad de la escoria	Product specific surface area Superficie de area especifica de escoria	Product Moisture Humedad del Producto terminado (%)	Power- (kw)
HLM30/2S	2500	23-26	<15%	≥420m2/kg	≤1%	900
HLM34/3S	2800	50-60	<15%	≥420m2/kg	≤1%	1800
HLM42/4S	3400	70-83	<15%	≥420m2/kg	≤1%	2500
HLM44/4S	3700	90-110	<15%	≥420m2/kg	≤1%	3350
HLM50/4S	4200	110-140	<15%	≥420m2/kg	≤1%	3800
HLM53/4S	4500	130-150	<15%	≥420m2/kg	≤1%	4500
HLM56/4S	4800	150-180	<15%	≥420m2/kg	≤1%	5300
HLM60/4S	5100	180-200	<15%	≥420m2/kg	≤1%	6150
HLM65/6S	5600	200-220	<15%	≥420m2/kg	≤1%	6450/6700

Note: Raw Materials bond index<=13kWh/t.

SPECIFICATION AND TECHNICAL PARAMETER SHEET OF HLM PULVERIZED VERTICAL MILL

Modelo Model	Grinding table median diameter (mm)	Capacity (th)	Raw Material Moisture	Fineness	Powder Moisture (%)	Power (kw)
HLM16/2M	1250	8-13	<15%	R0.08=2-12	≤1%	110/132
HLM17/2M	1300	10-15	<15%	R0.08=2-12	≤1%	160/185
HLM19/2M	1500	14-22	<15%	R0.08=2-12	≤1%	220/250
HLM21/2M	1700	20-28	<15%	R0.08=2-12	≤1%	315/355
HLM24/2M	1900	26-35	<15%	R0.08=2-12	≤1%	400/450
HLM28/2M	2200	35-45	<15%	R0.08=2-12	≤1%	450/500
HLM29/3M	2400	45-56	<15%	R0.08=2-12	≤1%	560/630
HLM34/3M	2800	70-90	<15%	R0.08=2-12	≤1%	900/1120

Remarks: Coal Fineness ≤3% when grinding anthracite ,the capacity will go down.

SPECIFICATION AND TECHNICAL PARAMETER SHEET OF HLM SERIES FINE ROLLER MILL (DESNLFURIZATION OF POWER PLANTS)

Model	Grinding table median diameter (mm)	Capacity (th)	Raw Material Moisture	Raw Meal Fineness	Power (kw)
HLM16/2X	1250	6-9	<5%	325meshs(44um) 90%passed	110/132
HLM17/2X	1300	9-13	<5%		185/200
HLM19/2X	1500	15-20	<5%		250/280
HLM21/2X	1700	24-32	<5%		355/400
HLM24/2X	1900	26-35	<5%		450/500
HLM29/3X	2400	36-45	<5%		560/630
HLM30/3X	2500	45-58	<5%		710/800
HLM34/3X	2800	56-80	<5%		1120/1250

Note: Raw Materials bond index<=13kWh/t.

Performance advantages:

1. High efficiency

(1) Low energy consumption, high efficiency, 40%-50% lower energy consumption than ball mill;

(2) High single machine output, can use off-peak electricity;

(3) Vertical mill technology is initiated by the country, it can improve the competitive strength of the enterprises in local area or even in the country;

2. Easy maintenance, low operation cost

(1) The rollers can be pull out from the mill by the hydraulic device, which is convenient for plate-replacement and bigger maintenance space;

(2) Left and right side of the roller shell can both be used for prolonging the working life;

(3) The mill can run without raw material on the grinding table, which erases the difficulty in starting;

(4) The roller and grinding table are made from special material for longer working life;

(5) High degree of automation: Applied Germany Siemens PLC series with automatic control system and can realized easy long-distance control and unmanned operation.

3. Low investment cost

The equipment features in a combination of crushing, drying, grinding, and conveying, simple process flow, reasonable and compact layout, space-saving (50% less than ball mill), lower foundation cost and workshop cost in the field;

4. Stable powder quality

(1) Material stay a short time in the mill, easy to control fineness and chemical component;

(2) Regular powder shape, narrow fineness range, good fluidity, extensive application;

5. Reliability

(1) Rollers with height-controlled device, which could avoid strong vibration caused by the lack of material on the table;

(2) Newly-designed roller sealing component ensures the reliable sealing without sealing the blower, which can lower the oxygen content in the mill to prevent the possibility of explosion;

6. Environmentally friendly

(1) Lower vibration and noise;

(2) The whole facility is all sealed and operates under negative pressure, no powder overflow, no-dust workshop can be realized.

(3)Vertical mill is the better equipment to lower power consumption in the mill industry, which is also what the country advocate and a must to increase the enterprise competitiveness in China powder industry.

7. High Automatic Level

(1) PLC automatic control system, remote control, easy operation and maintenance, lower labor cost.

8. Strong Drying Ability

(1) Vertical mill features in high trying ability with hot air direct contact with the material in the mill, maximal feeding moisture of 15% is workable. A separate drying machine and energy for the mill system can be both saved. The vertical mill can satisfy the materials in different humidity by adjusting the hot air temperature.