

# ***VERTICAL MILL***

**立式磨粉机**







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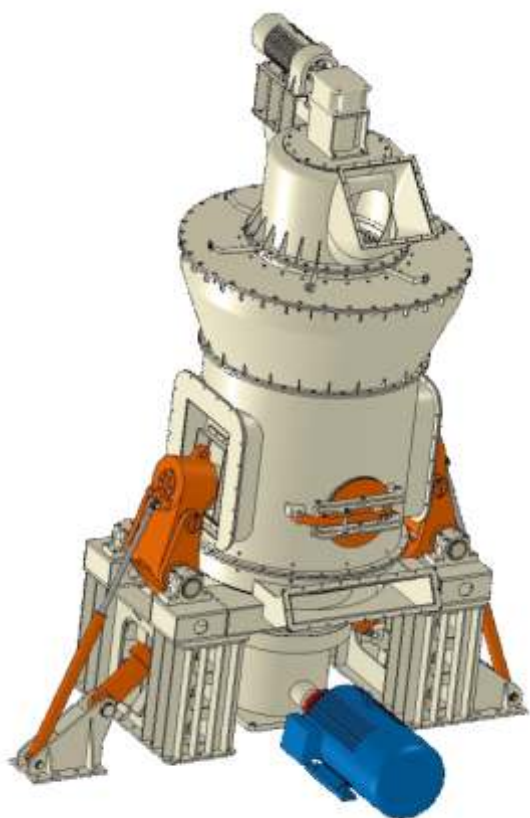
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# VERTICAL MILL

## 立式磨粉机

立式磨粉机是我公司在广泛采用国内外先进技术的基础上，结合多年的各种磨机生产经验，设计开发的先进粉磨设备。是一种集破碎、干燥、粉磨、分级输送于一体的磨粉行业理想设备。立式磨粉机可广泛应用于水泥、电力、冶金、化工、非金属矿等行业。用于将块状、颗粒状及粉状原料磨成所要求的粉状物料。



Vertical mill is one advanced mill, adopting top technology domestic and abroad, and based on many years' mill experiences. It can crush, dry, grind, and classify the materials. Vertical milling machine can be widely used in such industries as cement, power, metallurgy, chemical industry, non-metallic mineral. It is used to grind granular and powdered materials into powder with required fineness.







## 主要特点:

### 1. 投资费用低

由于集破碎、干燥、粉磨、分级输送于一体，系统简单，布局紧凑，占地面积约为球磨系统的50%，而且可露天布置，因此能大量降低投资费用。

### 2. 运行成本低

(1)磨粉效率高：采用磨辊在磨盘上直接碾压磨碎物料，能耗低，和球磨系统相比节约能耗30%~40%。

(2)磨损少：由于工作中磨辊并不与磨盘直接接触，且磨辊与衬板采用优质材料制作，因此使用寿命长，磨损少。

### 3. 烘干能力强

由于热风在磨内直接与物料接触，烘干能力强，节约能源，通过调节热风温度，能满足不同湿度物料要求。

### 4. 操作简便 运行可靠

(1)装备有自动控制系统，可实现远程控制，操作简便。(2)装备有防止辊套和磨盘衬板直接接触的装置，避免了破坏性冲击和剧烈震动。

### 5. 产品质量稳定

由于物料在磨内停留时间短，易于检测和控制产品粒度及化学成分，减少重复碾磨，稳定产品质量。

### 6. 维修方便

通过检修油缸，翻转动臂，更换辊套、衬板方便快捷，减少停机损失。

### 7. 环保

震动小，噪音低，且设备整体密封，系统在负压下工作，无粉尘外溢，环境清洁，满足国家环保要求。





## Main Features:

### 1. Low Investment Cost

This mill itself can crush, dry, grinding, classifying, so the system is simple, and occupation area is about 50% of ball mill system. In addition, it can be installed outside, so it will reduce a large number of investment costs.

### 2. Low Operation Cost

(1).high efficiency: roller compacted materials directly onto the grinding disc, so power consumption is low. Compared with ball mill, it saves energy consumption by 30% ~ 40%.

(2).less wear and tear: As the roller is not in direct contact with the disc, and material of the roller and liner is high quality, so life lime is long.

### 3. High Drying Ability

As the hot air inside contacts directly with the material, drying ability is higher, and it saves energy. By regulating the air temperature, it can meet requirements with different humidity.

### 4. Simple and reliable operation

(1).It is equipped with automatic control systems, so remote control makes it easy to operate.

(2)It is equipped with one device,which prevents the roller from contacting with the liner directly, and avoids the destructive impact and severe vibration.

### 5. the stability of product quality

As the material stays in the mill for a short time, it is easy to detect and control the product particle size and chemical composition, to reduce duplication of milling, stable product quality.

### 6. Maintenance convenience

By repairing fuel tank, rotating the arm, it is fast to replace the roller sleeve, and liner, and reduce the downtime loss.

### 7. Environmental protection

It is with small vibration, low noise, and the overall sealing. The system works under negative pressure, so there is no dust going out. It meets the requirements of the state Environmental Protection.





## 工作原理:

如图1所示，电动机通过减速机带动磨盘转动，物料经锁风喂料器从进料口落在磨盘中央，同时热风从进风口进入磨内。随着磨盘的转动，物料在离心力的作用下，向磨盘边缘移动，经过磨盘上的环形槽时受到磨辊的碾压而粉碎，粉碎后的物料在磨盘边缘被风环高速气流带起，大颗粒直接落到磨盘上重新粉磨，气流中的物料经过上部分离器时，在旋转转子的作用下，粗粉从锥斗落到磨盘重新粉磨，合格细粉随气流一起出磨，通过收尘装置收集，即为产品，含有水分的物料在与热气流的接触过程中被烘干，通过调节热风温度，能满足不同湿度物料要求，达到所要求的产品水分。通过调整分离器，可达到不同产品所需的粗细度。

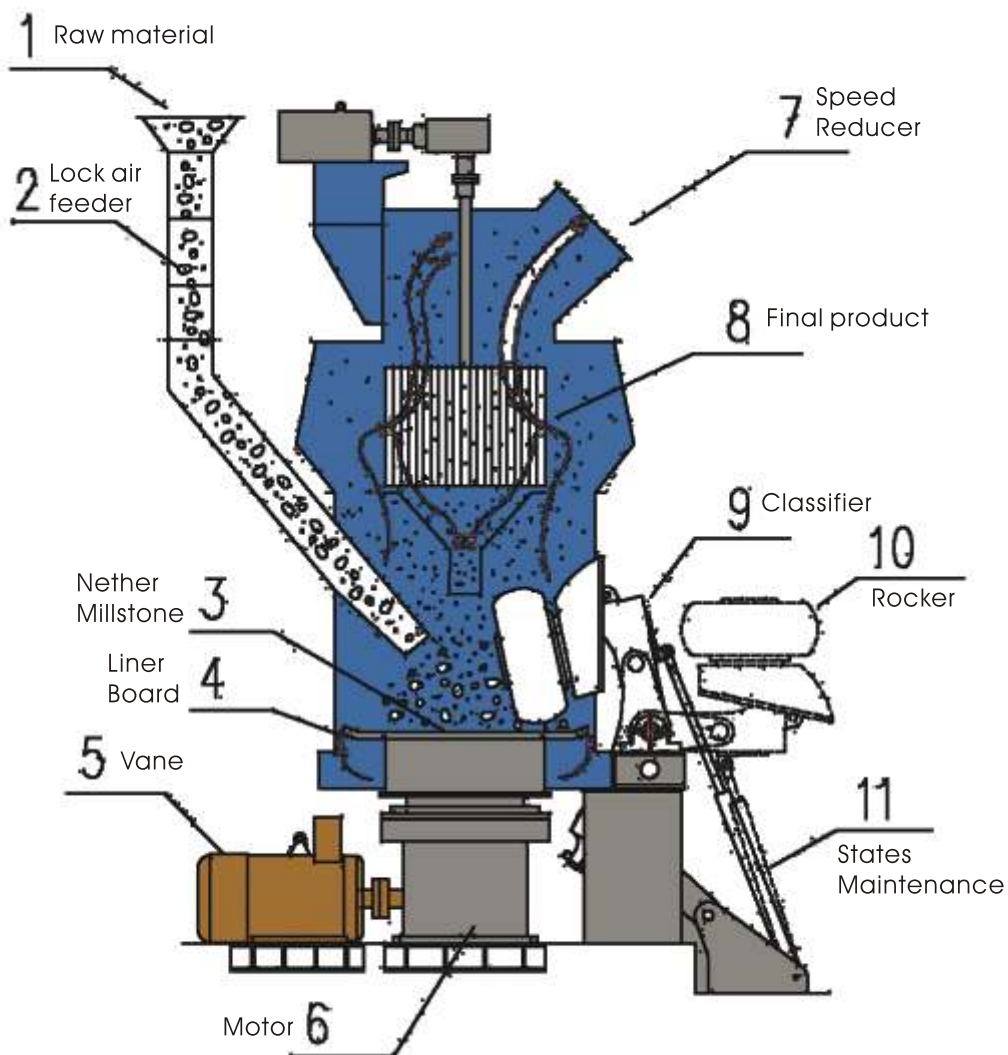
## Working principle:

As chart 1 shows, motor runs under the condition that reducer drives the grinding device. The materials fall into the center of device through powder feed lock device, and hot air comes into mill through air inlet. Under the function of centrifugal force, the materials move to the edge of the grinding device as it runs and rollers will grind the materials when they come by the annular chute. The grinded materials will be taken up by air circulation and the bigger powders will fall down for regrinding. Qualified powders will be collected by collecting device as to be finals. Materials containing water will be dried when they contact with the hot air. Different humidity materials can be dried to the requirement through adjusting the temperature of hot air. Adjusting the separator can get the required fineness powders.



## 主要结构:

立式磨粉机主要由选粉机、磨辊装置、磨盘装置、加压装置、减速机、电动机、壳体等部分组成（见图1）。分离器是一种高效、节能的选粉装置。磨辊是用来对物料进行碾压粉碎的部件。磨盘固定在减速机的输出轴上，是磨辊碾压物料的地方。加压装置是为磨辊提供碾压力的部件，向磨辊提供足够的压力以粉碎物料。



## Main Structure

Vertical grinder mainly includes separator, roller device, grinding device, compression device, reducer, motor, frame and so on. (See chart 1). Separator is a kind of separating device with characteristic of high efficiency and energy saving. Roller is the part to grind the materials. Grinding disc on which materials are grinded is fixed on the output shaft of the reducer. Compression device is the part to provide enough pressure for the rollers to grind the materials.

## 磨煤机

### COAL MILL

型号 Model	LM130M	LM150M	LM170M	LM190M	LM220M	LM240M
转盘中径 Disc Dia. (mm)	1300	1500	1700	1900	2200	2400
产量 Capacity (t/h)	10~15	16~22	20~28	26~35	35~45	40~50
煤粉细度 Fineness (R0.08)	<15%	<15%	<15%	<15%	<15%	<15%
煤粉水份 Coal powder moisture	<1%	<1%	<1%	<1%	<1%	<1%
入磨物料最大尺寸 Max.input size (mm)	<38	<40	<42	<45	<50	<55
入磨物料水份 input moisture	<15%	<15%	<15%	<15%	<15%	<15%
入磨风温 Inlet air temperature(°C)	<350	<350	<350	<350	<350	<350
出磨风温 Outlet air temperature(°C)	75~95	75~95	75~95	75~95	75~95	75~95
原煤哈氏可磨指数 Hardgrove index of raw coal (HGI)	<55	<55	<55	<55	<55	<55
主电机功率 Main mill power(KW)	185	250	315	400	500	560
外型尺寸 Overall Dimension (长×宽×高) (L×W×H) (mm)	3500×3400×5800	4200×3900×7100	4700×4500×8300	8500×5600×8800	10200×6700×10600	11700×7700×12200
重量 Weight (t)	46	75	94	100	122	157



## 磨矿机

## ORE MILL

型号	Model	LM130K	LM150K	LM170K	LM190K	LM220K	LM240K
转盘直径	Disc Dia. (mm)	1300	1500	1700	1900	2200	2400
产量	Capacity(t/h)	10~30	13~40	18~57	23~72	36~114	41~128
出料粒度 Output fineness	微米 Micron	170~45	170~45	170~45	170~45	170~45	170~45
	目 Mesh	80~325	80~325	80~325	80~325	80~325	80~325
成品含水量	Final Product moisture	≤1%	≤1%	≤1%	≤1%	≤1%	≤1%
最大进料粒度	Max.input size (mm)	<38	<40	<42	<38	<40	<42
最佳入磨物料水分	Best input moisture	<4%	<4%	<4%	<4%	<4%	<4%
需烘干入磨物料水份	input moisture (drying required)	<15%	<15%	<15%	<15%	<15%	<15%
入磨风速	Inlet air temperature(°C)	<350	<350	<350	<350	<350	<350
出磨风速	Outlet air temperature(°C)	70~95	70~95	70~95	70~95	70~95	70~95
主电机功率	Main mill power(KW)	185~220	250~280	355~400	450~500	710~800	800~900
外型尺寸 (长×宽×高)	Overall Dimension (L×W×H) (mm)	3500×3400×5800	4200×3900×7100	4700×4500×8300	8500×5600×8800	10200×6700×10600	11700×7700×12200
重量	Weight (t)	48	75	90	100	125	160

Notes: 1、Material should be with hardness less than 7 in Mohs'.

2、Hot air is only necessary if outlet moisture is required to be less than inlet moisture.

3、When grinding material that is difficult to be grind, please use the largest power.



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