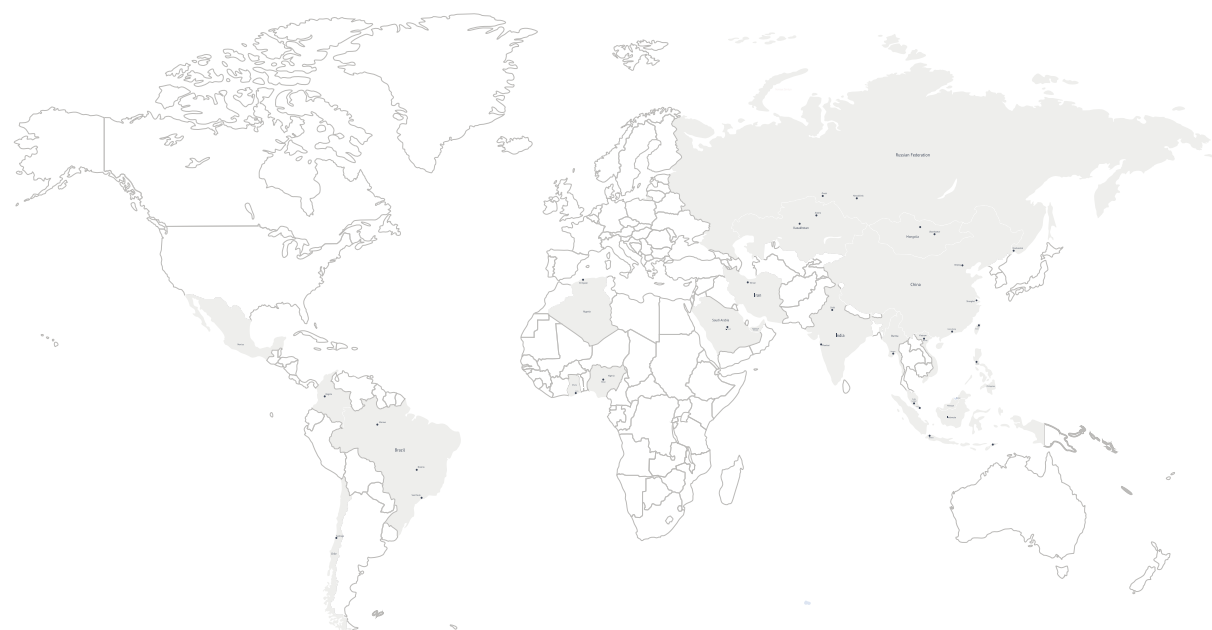


/ Z E N I T H I N T H E W O R L D /



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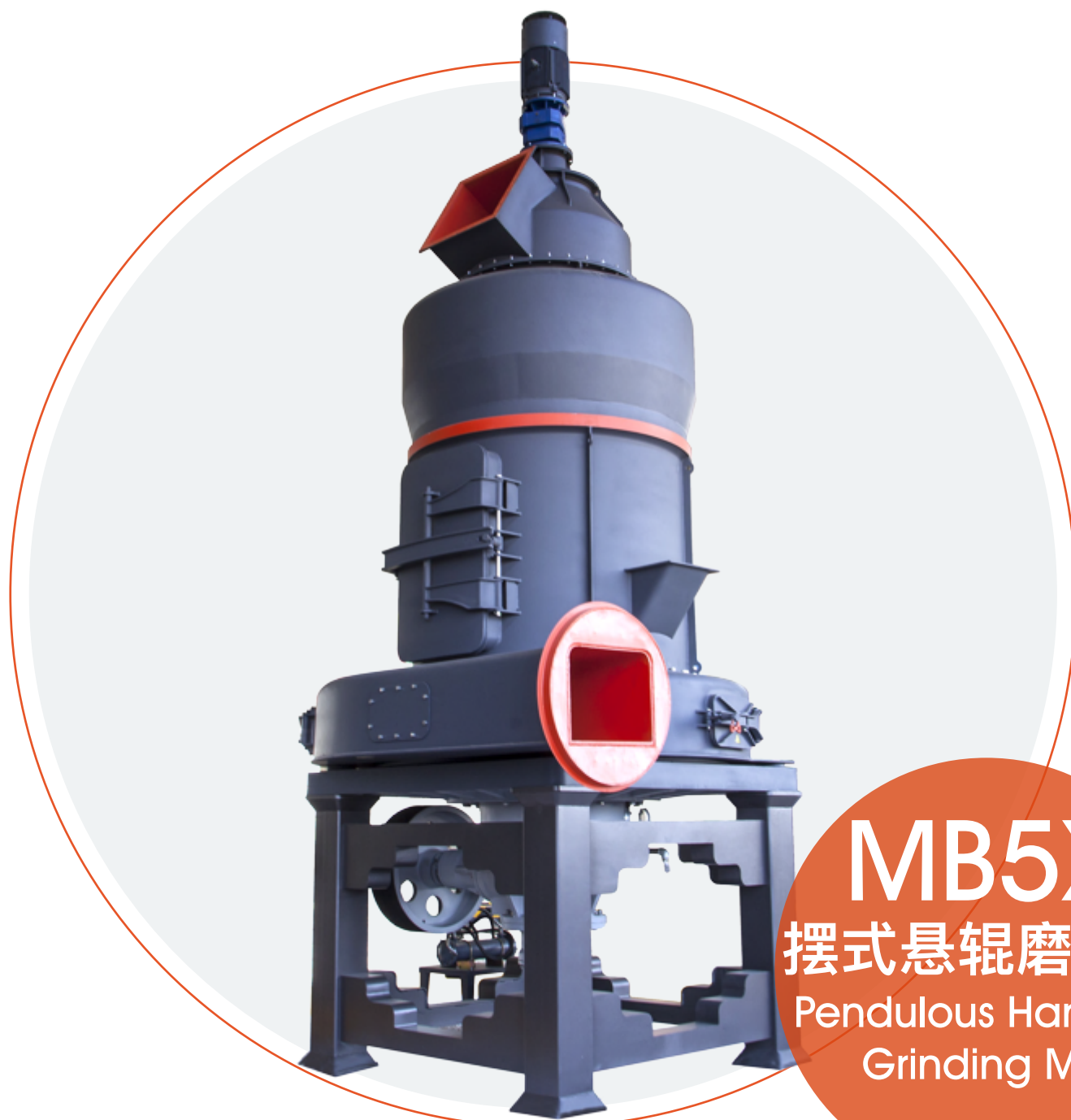
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【中笑V2P3-1811】



**MB5X**  
摆式悬辊磨粉机  
Pendulous Hanging  
Grinding Mill

# MB5X摆式悬辊磨粉机

## MB5X Pendulous Hanging Grinding Mill

**--至细至精 超越经典--**  
*Too fine to be beyond the classic*

作为磨粉设备的行家，上海西芝矿山工程机械有限公司系列磨粉机满足了世界各地对高质量、高性能、高效率粉磨物料的需求。在磨粉机设计阶段，我们已经充分考虑到各种可变因素、例如矿石的特性、具体的空间条件限制、当地的环保要求、维护保养的可操作性等，根据市场需求不断升级换代系列磨粉机。

Shanghai Zenith Mining and Construction Machinery Co., Ltd. (hereinafter referred to as Zenith) has satisfied the requirements for high quality, high performance and high efficiency of grinding materials all around the world. In design stage, we have taken various variable factors into full consideration, such as features of minerals, specific restriction of spatial conditions, local requirement for environmental protection, and operability of maintenance and so on, we make constant upgrading and updating of the series of grinding mills according to market requirement.

随着冶金、建材、化工、矿山等行业对物料加工的要求越来越高，基于对磨粉设备更高性能的追求，上海西芝矿山工程机械有限公司在前四代悬辊磨粉机的基础上进行了突破性创新设计、专注性能、优化细节，根据三十余年产品现场实地检测数据的积累和实验分析，研发出拥有多项发明专利技术的第五代摆式悬辊磨粉机——MB5X系列摆式悬辊磨粉机。

With increasingly high requirements for materials processing in metallurgy, building materials, chemical engineering, mine and other industries, and pursuit for higher performance of grinding equipment, Zenith made breakthroughs in innovative design, performance and optimized the details on the basis of the four previous generations of hanging grinding mills. According to accumulation and experimental analysis of on-site field test data of the products in more than thirty years, our company has researched and developed the fifth-generation pendulous hanging grinding mill - MB5X pendulous hanging grinding mill, with many invention patent technologies.

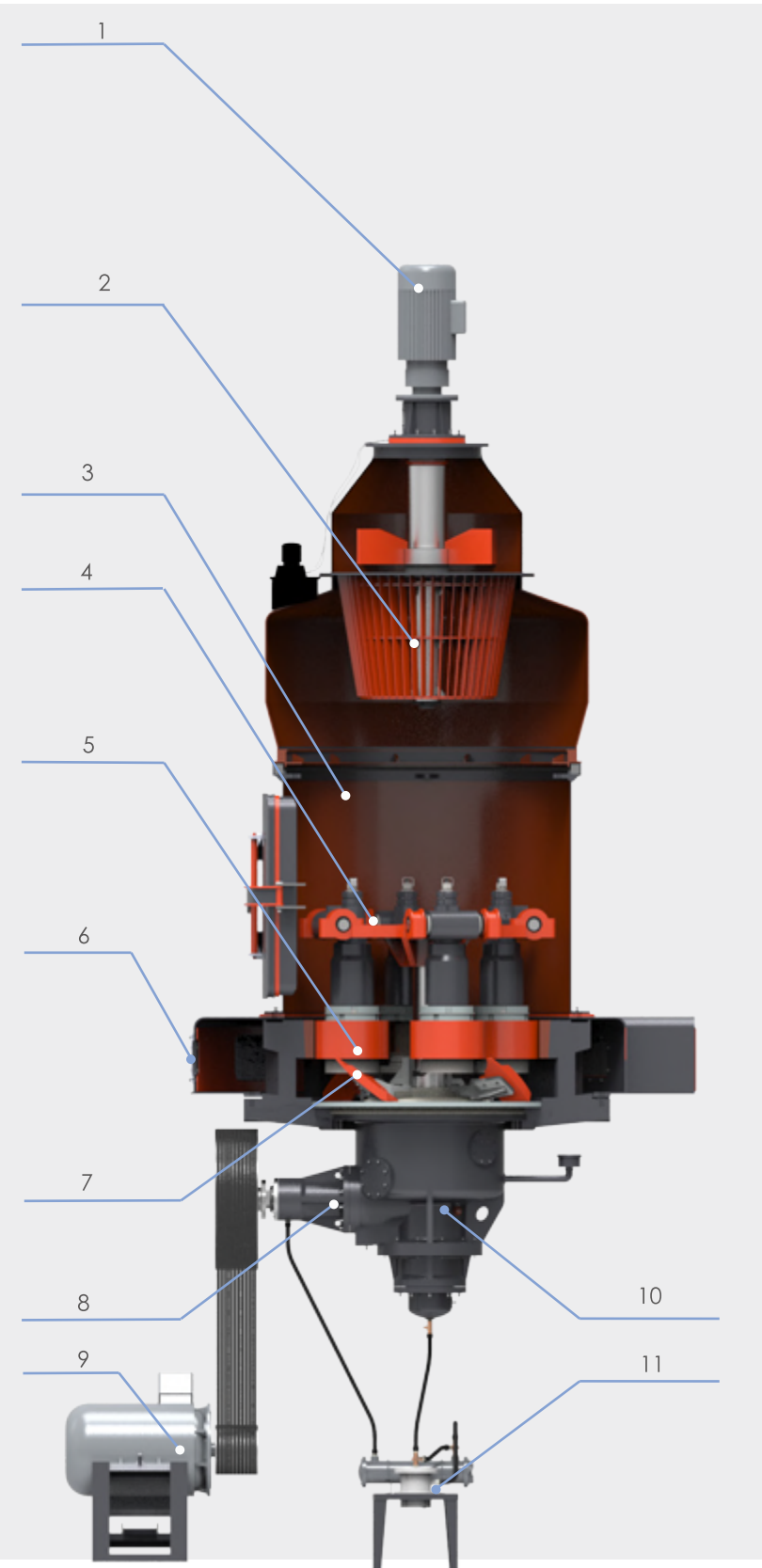
MB5X 摆式悬辊磨粉机代表了当今最先进的粉磨加工技术，全新结构设计的专利技术应用使得该设备运行和维护成本更低、环保性能更出色、出料品质更优，是更新换代的最好选择，对于石灰石、方解石、大理石、重晶石、长石、滑石、铝矾土、磷矿石、氧化铁红、白云石、花岗岩、烟煤、无烟煤、褐煤、高岭土、膨润土、石膏等莫氏硬度7级以下、含水量在6%以下的各种非易燃易爆的脆性矿产物料均可进行粉磨。

MB5X pendulous hanging grinding mill represents the most advanced grinding processing technology at present, and its application of patent technology of brand-new structural design makes the equipment's operation and maintenance cost much lower, environmental protection performance more excellent and finished products quality much superior, thus it is the optimum choice for upgrading and updating. The limestone, calcite, marble, barite, feldspar, talc, bauxite, phosphate ore, iron oxide red, dolomite, granite, bituminous coal, anthracite, lignite, kaolin, bentonite and other non-combustible and non-explosive brittle mineral products whose Moh's hardness are below Grade 7 and water content below 6% could all be ground.

## 主要结构

### Main structure:

- 1. 减速机  
Reduction box
- 2. 笼形转子总成  
Cage rotor
- 3. 中机体部件  
Mid-segment part
- 4. 磨辊吊架  
Roller hanger
- 5. 磨辊  
Roller
- 6. 蜗壳部件  
Volute part
- 7. 铲刀部件  
Shovel part
- 8. 传动轴部件  
Transmission shaft part
- 9. 电机  
Motor
- 10. 减速箱部件  
Reduction gearbox part
- 11. 润滑系统部件  
Lubricating system



# 产品用途及适用范围

## *Product usage and application*

MB5X158主要适用于粉磨细度在0.18mm（80目）至0.045mm（325目）之间的非金属矿产品物料，增加特殊装置后可使成品粉达到0.85mm（20目）D80。

MB5X158 is mainly used to produce non-metallic mineral materials with grain size of 0.18mm (80 mesh) to 0.045mm (325 mesh) , whose range can be widened to 0.85mm (20 mesh) D80 through installation of a special equipment.



MB5X摆式悬辊磨粉机适用物料  
MB5X Pendulous Hanging Grinding Mill materials

# 三大核心技术 稳居行业领先地位

## *Three big core technologies, ranking stable leading position within the industry*

MB5X摆式悬辊磨粉机之所以被誉为当今技术最领先的磨粉设备，除了在前几代磨粉机技术基础上进行优化完善，更是采用了行业最新的三大核心技术，赋予了设备更高的耐用性、稳定性和最低的运行成本。

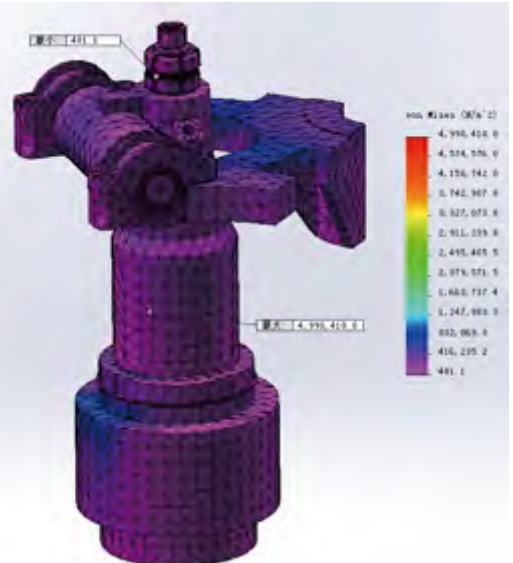
MB5X pendulous hanging grinding mill is honored as grinding equipment of the most advanced technology at present for the reason that, except for optimization and perfection on the basis of previous several generations mills' technology, it also applies three big latest core technologies in the industry, and it grants the equipment with higher durability, stability and the lowest operation cost.

## 稀油润滑磨辊装置 维护成本低

### *Thin oil lubricating grinding roller device, low maintenance cost*

MB5X摆式悬辊磨粉机磨辊装置采用稀油润滑，该技术在国内外属于首创，免维护、易操作。稀油润滑为油浴润滑，无需频繁加油，比油脂润滑更方便，且维护成本更低。

Grinding roller device of MB5X pendulous hanging grinding mill adopts thin oil lubrication, which is a technology initiated domestically, and it is maintenance-free and easy to operate. Thin oil lubrication is of oil bath lubrication, which is more convenient than grease lubrication since no frequent oil-adding, and it is of lower maintenance cost as well.





## 蜗壳弹性减震结构 设备稳定性更高

Volute elastic damping structure ensures stability of equipment

蜗壳弹性减震结构，有效阻断主机振动损伤。蜗壳与机座之间采用特殊弹性结构，结合橡胶减震垫设置，直接避免因底座振动对选粉机运转稳定性的影响，杜绝因底座振动造成蜗壳和中机体震裂的问题。

Volute elastic damping structure can effectively block vibrating damage of the host. Between the volute and engine base, special elastic structure is applied, and in combination with setup of rubber shock pad, it could directly avoid influence of vibration of engine base on operating stability of classifier and completely eradicate the problem of shatter crack of volute and mid-segment body due to vibration of engine base.

## 取消铲刀筒结构 提高研磨效率

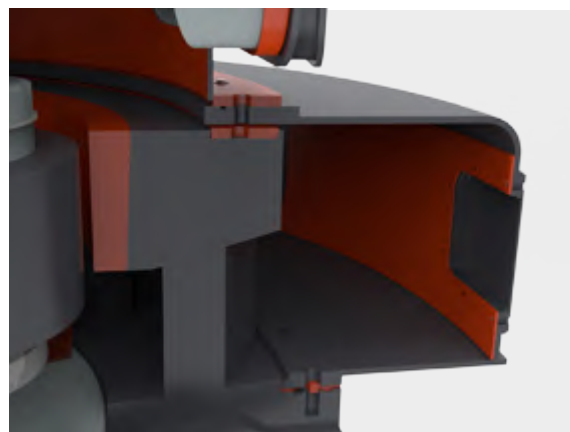
Cancel shovel blade cylinder structure, improving the grinding efficiency

铲刀筒结构配合大直径磨辊设计，研磨效率更高。磨腔内无铲刀筒结构，研磨腔通风面积更大且风送阻力更小，配合大直径磨辊的超强碾压力，直接提升研磨效率。

In combination with large-diameter grinding roller design, the shovel blade cylinder structure is of higher grinding efficiency. Since there is no shovel blade cylinder structure in the grinding chamber, whose ventilation area is larger and air-conveying resistance is smaller, and in combination with super-strong grinding force of large-diameter grinding roller, the grinding efficiency is improved directly.



研磨腔  
Grinding chamber



蜗壳弹性结构  
Volute elastic damping structure

## 六大技术突破 保证设备性能第一

*Six big technological breakthroughs  
ensuring equipment performance rank in the first place*

在原有磨粉机技术上进行突破创新是保证MB5X摆式悬辊磨粉机性能处于行业领先地位的重要因素，全新MB5X摆式悬辊磨粉机是整个团队近乎偏执的成果，我们对所有必要部件进行了创新，从而实现了至为高效的设计。

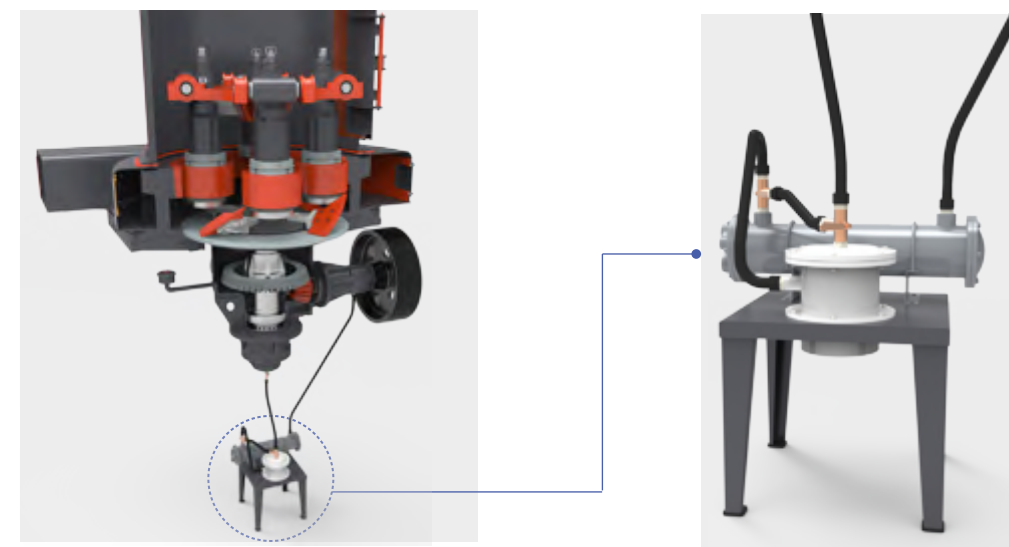
To make breakthrough innovation on the basis of the original technology of grinding mills is an important factor in ensuring leading industrial position of performance of MB5X pendulous hanging grinding mill, which is a great achievement of the whole team since we make innovation on every essential unit, thus achieving supreme high-efficiency design.

## 稀油润滑方式 设备稳定性好

Diluted oil lubricating method  
realizes excellent stability performance of equipment

主机主轴采用稀油自润滑系统，全自动、省人工。主轴轴承、传动轴轴承、齿轮啮合面全部都由自带油泵循环供油润滑、散热，且自动运行，无需人工操作，及时有效的保证主机运行的稳定性。

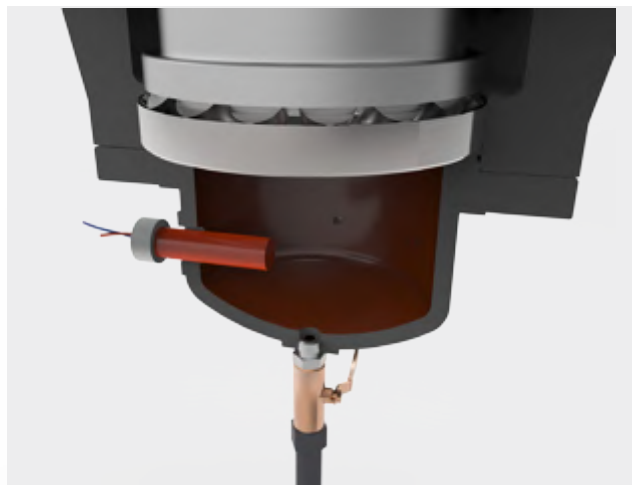
Main shaft of host applies diluted self-lubricating system, which is full-automatic and labor-saving. The main-shaft bearing, transmission-shaft bearing and gear engagement surface are all supplied with cyclic oil lubrication and heat dissipation by built-in oil pump with automatic operation ever without manual operation, which can timely and effectively ensure operating stability of the host.



## 主机减速箱油温自动检测装置 Automatic oil-temperature detecting device of host reducer

主机减速箱配置油温检测系统和加热装置，可根据设定要求在低温状态下自动运行，保证主机润滑系统在最佳状态运行。

The host reducer is equipped with oil-temperature detecting system and heating unit, and it could operate automatically under low temperature according to set requirement, ensuring the host lubricating system operate in optimum status.



## 主轴轴承专用温度检测装置 Special temperature detecting device of main-shaft bearing

主轴轴承位置设有专用温度检测装置，可实时检测轴承运行情况，便于及时发现轴承故障，保障设备运行可靠性。

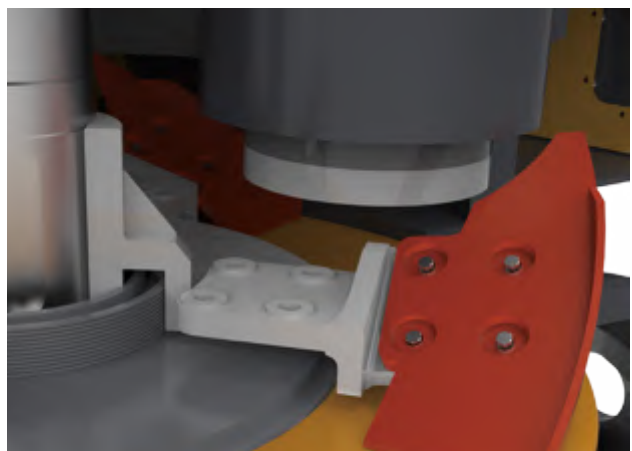
Special temperature detecting device is set in the place of main-shaft bearing, which could make real-time detection of operating condition of the bearing, is convenient for discovering bearing malfunctions timely and could ensure reliability of operation of equipment.



## 槽式铲刀流道 研磨效率高 Groove shovel flow channel, high grinding efficiency

MB5X摆式悬辊磨粉机采用特殊凹槽形铲刀流道，可有效汇聚物料，更加便于铲刀将物料送至研磨区，提升研磨效率。

MB5X pendulous hanging grinding mill applies special groove shovel flow channel, which could effectively concentrate the materials, and make it easier for the shovel blade to convey the materials to the grinding area, thus improving the grinding efficiency.



## 网孔式磨辊吊架 物料输送效率高 Mesh grinding roller hanger, high material-conveying efficiency

磨辊吊架采用异型网孔设计，保证吊架强度的同时有效增加研磨腔通风面积，在降低风阻的同时，直接提升物料输送效率。

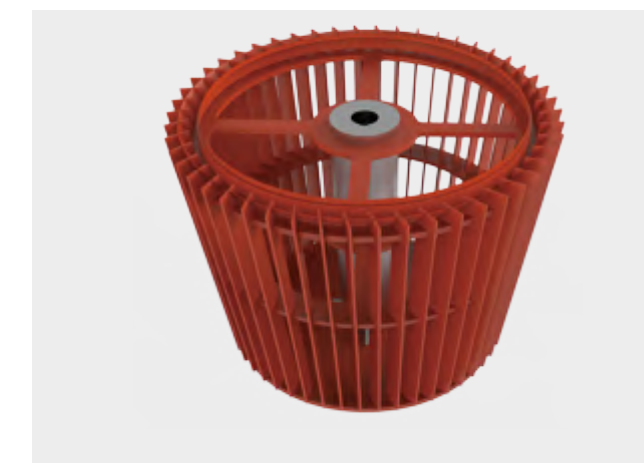
Grinding roller hanger applies unusual mesh design, which could effectively increase the ventilation area of the grinding chamber while ensuring strength of the hanger, and could directly improve material-conveying efficiency while lowering the windage.



## 新型笼式选粉机 系统电耗低 New-type cage classifier, low power consumption of the system

选粉机采用低阻力吊挂式笼式选粉机，分选粒度范围窄、分选效率高、系统能耗低，同等物料和细度等条件下，比叶片式选粉机电耗低，产能高。

Classifier applies low-resistance hanging cage classifier, which is of narrow grain-size sorting, high sorting efficiency, low system energy consumption, and under condition of equal materials and fineness, it is of lower power consumption and higher productivity than blade-type classifier.



## -----人性化设计 寿命长成本低-----

*Humanized design,  
long service life but low cost*

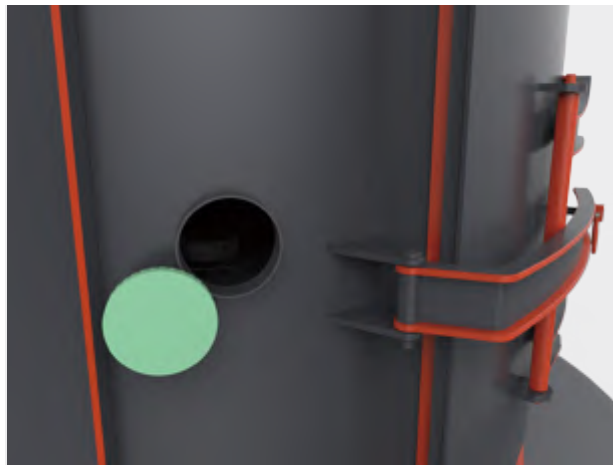
1. 主轴和磨辊采用稀油润滑，大大延长注油周期，无需人工频繁保养，节省了大量的人力成本，人性化程度高。

1. The main shaft and the grinding roller apply oil lubrication, which has greatly extended the oiling period without frequent manual maintenance, and has saved a great many of human cost, and is of high humanity degree.



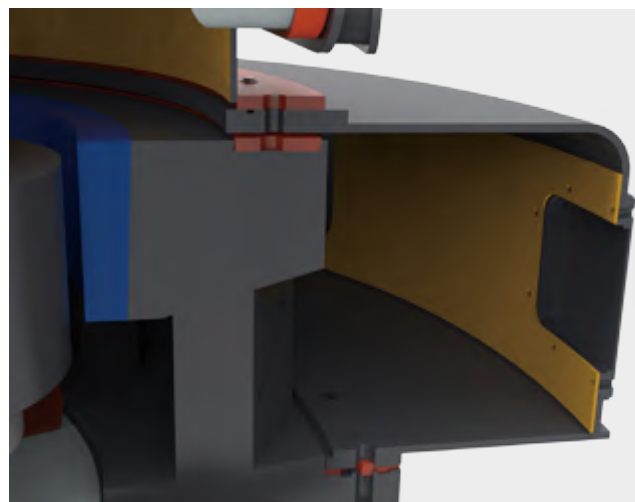
2.磨辊装置采用独有触摸式油位检测技术，只需通过中机体专用观察孔处即可检测油位，方便快捷，更具人性化。

2.The grinding roller device applies exclusive touching-type oil-level detecting technology, and the oil level could be detected merely through special observation hole of the middle body, which is convenient and efficient, and is more human-friendly.



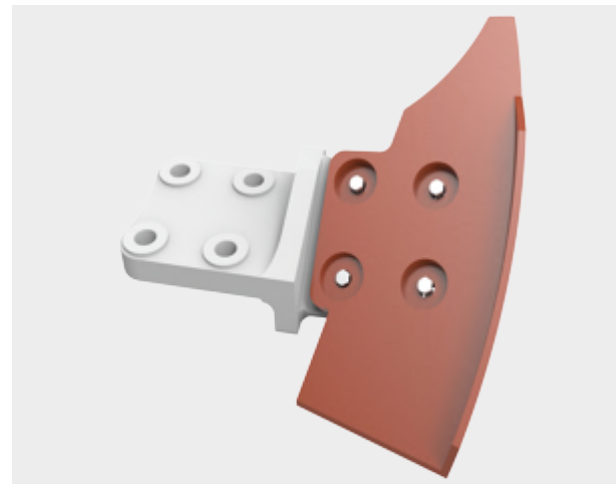
4.进风蜗壳进行重新设计，采用耐磨衬板贴合，直接提升蜗壳使用寿命数倍。

4.Air-intake volute is redesigned, applying wear-proof liner for fitting, which has directly improved service life of the volute in multiples.



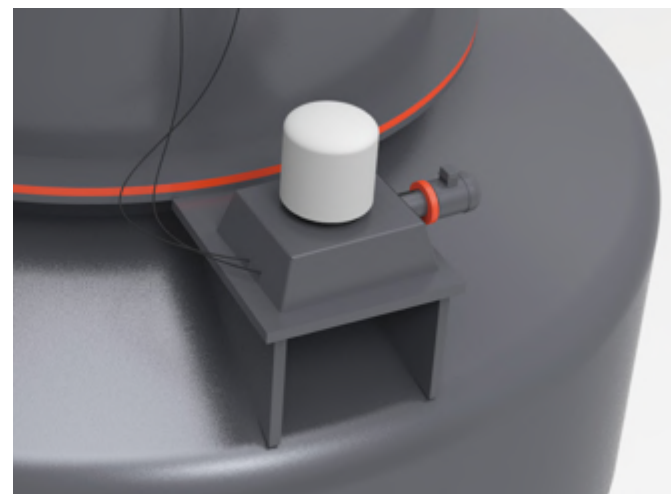
3.一体式耐磨铲刀板，提升耐用性能，降低易损件使用成本。

3.Integrated wear-proof shovel plate could improve the durable performance and lower use cost of spare parts.



5.选粉机传动系统采用集中自动润滑系统，可根据系统设定自动运行，无需停机和人工操作，可大大降低停机损失。

5.Transmission system of powder classifier applies concentrated and automatic lubricating system, and it could operate automatically according to system setup without shut-down and manual operation, which could greatly lower the down-time loss.



## ----高精尖配置 系统工艺最佳----

*High-grade, precise and advanced configuration, optimum system process*

### 高效集粉器 提高设备使用寿命 Efficient powder collector, improving service life of equipment

MB5X摆式悬辊磨粉机采用大直径集粉器和底部气动锁风阀，可有效提高集粉效率，杜绝回粉现象；集粉器进风口采用耐磨衬板贴合，大大提升使用寿命。

MB5X pendulous hanging grinding mill applies large-diameter powder collector and bottom pneumatic wind lockage valve, which could effectively improve powder-collecting efficiency, and avoid powder-returning phenomenon; air intake of the powder collector applies wear-proof liner for fitting, which has directly improved the service life.



### 合理管道布局 减少风阻 Reasonable pipeline layout, reducing windage

选粉机与集粉器之间采用方形管道，便于耐磨材质的多项选择，同时可避免集粉器入口处由于方圆管的变径引起的风阻现象。

Between the powder classifier and the powder collector, square pipeline is applied, which is convenient for multiple choice of wear-proof materials, and at the same time, it could avoid windage phenomenon in the entrance of powder collector due to variable diameter of the square and the circular pipeline.



脉冲除尘器 高效环保  
Pulse dust collector, efficient and environmental

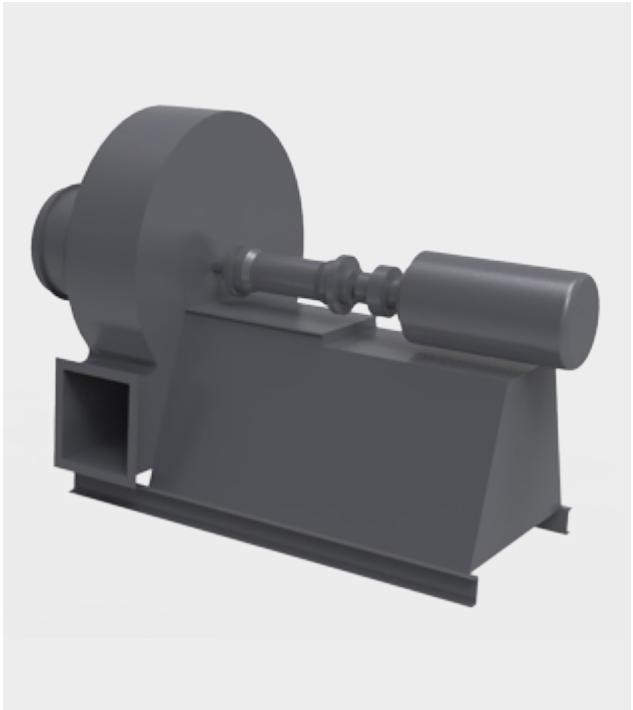
MB5X摆式悬辊磨粉机采用脉冲除尘器，气力清灰，自动运行，省去人工清灰操作，杜绝粉体污染，环保效果好。

MB5X pendulous hanging grinding mill applies pulse dust collector, remove ash via pneumatic force and operating automatically, which saves manual ash-removing operation, avoids powder pollution and is of excellent environmental protection effect.

特殊专用风机 运行稳定  
Special dedicated fan, steady operation

MB5X摆式悬辊磨粉机采用特殊专用风机，性能可靠、能耗最低，保证系统所需风力的稳定运行。

MB5X pendulous hanging grinding mill applies special dedicated fan, which is of reliable performance and minimum energy consumption, thus ensuring stable operation of wind force required by the system.



工作原理:  
*Working principle:*

物料经喂料机喂入主机研磨室内进行研磨，研磨后的粉体随风机气流进入笼式选粉机内进行粉体分级，符合细度要求的成品粉体经管道进入集粉器内进行收集，经卸料阀排出即为成品粉体。

The material is fed into the grinding chamber by vibrating feeder. After grinding, the powder along with blower airflow is carried out in the cage-type classifier for classification; Qualified powder will go through pipe and collect by cyclone, then discharge by rotary valve.

主机和风机结合处，设有余气管道，以保证整个系统的气流平衡。经余气管排出的多余气体，通过除尘器进行收集，杜绝粉尘污染。

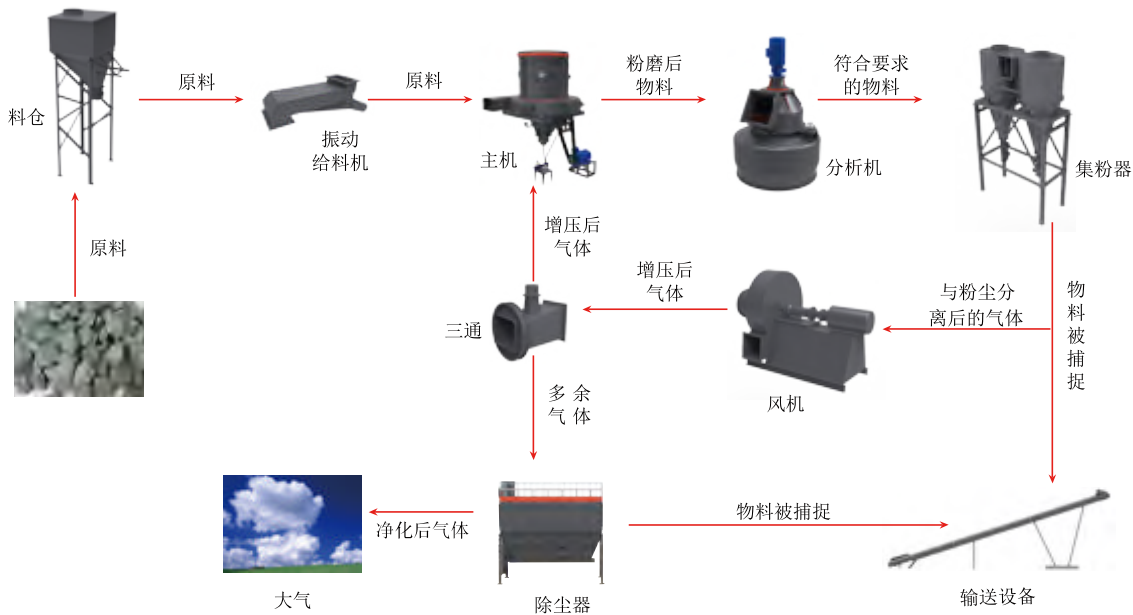
The junction between main unit and blower, install the residual air pipeline to ensure the entire system with airflow balance. The residual air goes to pipeline and will be collected by dust bag filter, to prevent dust pollution.

分析机通过变频调速电机带动笼形转子旋转，对粉子分级。当要获得较细粒度粉子时，就必须提高笼形转子转速，使不合要求的粉子被笼形转子抛向外壁与气流脱离，不合格粉子因自身重力的作用落入磨室进行重磨，合格的成品粉子通过笼形转子随气流进入旋风集粉器内进行分离，气流与粉子分离后，粉子被收集。

Cage-shaped rotor in classifier, driven by variable-frequency motor, performs the function of grading the powder. When finer powder is needed, the rotating speed of rotor should be increased accordingly. Unqualified powder gets separated from airflow and falls down to mill chamber due to gravity. Qualified powder enters cyclone collector with airflow and get collected.

集粉器对磨粉系统的性能起到很重要的作用。含尘气体进入集粉器时气流由直线运动变为圆周运动。含尘气体在旋转过程中产生离心力，将相对密度大于气体的粉尘甩向器壁。尘粒一旦与器壁接触，便会失去径向惯性力而靠向下的动量和向下的重力沿器壁下落直至锥底。旋转下降的气流到达锥体时，因圆锥形的收缩而向除尘器中心靠拢，同时切向速度不断提高，尘粒所受离心力也不断加强而被分离。当气流到达锥体下端某一位置时，即从集粉器中部由下反转向形成负压气流，必须将集粉器内部环境与外界空气严格隔开，否则外界气体会流入并将被收集的粉子带走，因此集粉器的下端装有双层气动卸料阀，其作用是将外界正压气体与集粉器内的负压气体隔离开。

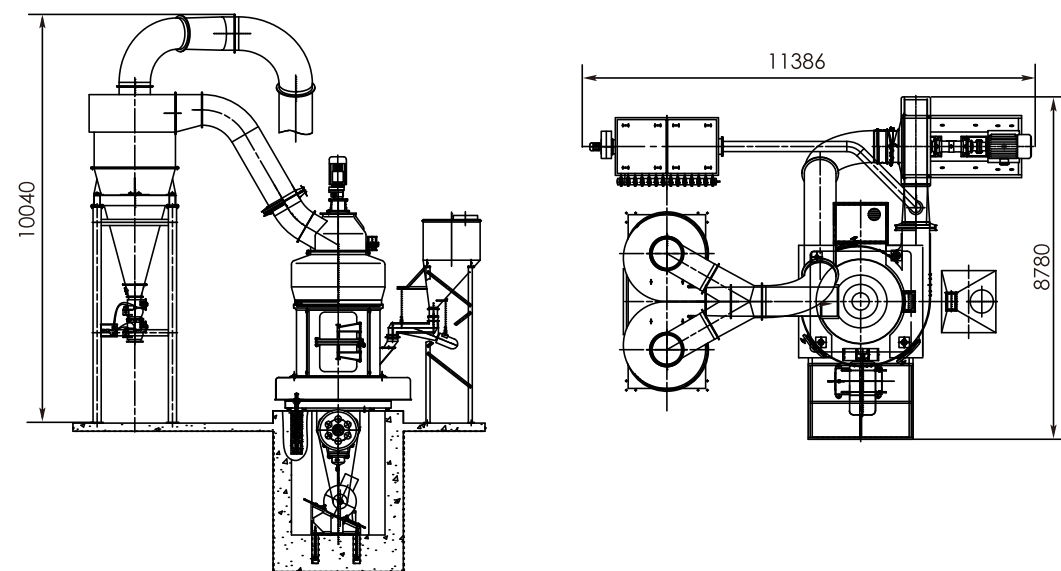
The cyclone collector plays an important role in the performance of the milling system. When dust-laden air enters the collector, it changes from linear motion to circular motion. The centrifugal force pushes the dust to wall of cyclone, and falls down due to momentum and gravity. Airflow swirls down to the cone, gradually concentrate to the center, where powder is further collected by increasing centrifugal force. At certain point of bottom, there is negative pressure going upwards. Therefore we adopt a double-deck pneumatic discharging valve in case that outer air blows away the collected powder.





外形尺寸图:

Overall dimensions:



工作现场

Work site:



主要结构:

Main structure:

- 1—主机; Main Unit
- 2—给料机; Vibrating Feeder
- 3—风机; Blower
- 4—缓冲料仓; Hopper
- 5—选粉机; Powder Classifier
- 6—脉冲除尘器; Pulse dust collector
- 7—进风管道; Air intake pipe
- 8—集粉器; powder collector
- 9—回风管道; Air returning pipe



技术参数:

Technical Parameters:

型号	磨辊数量 (个)	磨辊直径 (mm)	磨环直径 (mm)	磨环高度 (mm)	进料粒度 (mm)	成品细度 (mm)	产量 (t/h)	总功率 (kW)
Model	Quantity of grinding roller (piece)	Diameter of grinding roller (mm)	Diameter of grinding ring (mm)	Height of grinding ring (mm)	Feed size (mm)	Fineness of finished products (mm)	Capacity (t/h)	Power (kW)
MB5X98	3-4	330	1000	180~160	25	0.045-1.0	2.7-6.5	82.5-92.5
MB5X118	3-4	400	1200	210~190	25	0.045-1.0	4-9.8	126.5-150.5
MB5X138	3-4	460	1400	240~220	30	0.045-1.0	6.5-16	206-229.5
MB5X158	3-5	530~480	1600	270~250	30	0.045-1.2	9-23	293.5-329.5
MB5X178	4-5	600~540	1800	310~280	35	0.045-1.2	11-25	390-437
MB5X198	4-5	670~600	2000	340~320	35	0.045-1.2	15-32	492-560
MB5X218	4-5	730~660	2200	370~350	40	0.045-1.5	19-38	623.5-703.5
MB5X238	4-6	800~620	2400	400~380	45	0.048-1.5	26-60	777-897
MB5X268	4-6	900~700	2700	450~420	50	0.053-1.5	36-75	1005-1120
MB5X298	4-6	1000~780	3000	500~460	55	0.058-1.5	48-83	1247-1407