

# MICRO STONE DISC MILL

## 超微石盘磨



研发  
R&D



生产  
Production



销售  
Sales



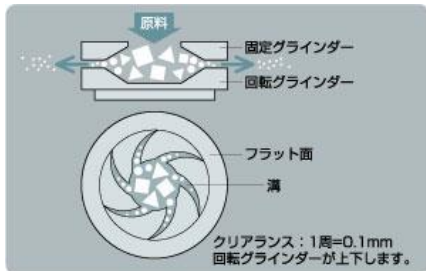
售后  
After sales



## 设备原理 Equipment principle

利用上下1组的陶瓷磨盘,上盘固定,下盘高速旋转  
从而产生的揉搓·剪切·解聚·打散达到粉碎效果

The upper plate is fixed and the lower plate rotates at a high speed by using the ceramic grinding plate of the upper and lower groups. The resulting kneading, shearing, depolymerization and dispersion achieve the crushing effect.



XRS-150



XRS-250



XRS-360

设备名: 超微石盘磨

用途: 原材料超细粉碎用

型号: XRS-150 XRS-250 XRS-360

磨盘径:  $\phi 150\text{mm}$   $\phi 250\text{mm}$   $\phi 360\text{mm}$

Equipment name: Micro stone disc mill

Use: For superfine crushing of raw materials

Model: XRS-150 XRS-250 XRS-360

Grinding disc diameter:  $\phi 150\text{mm}$   $\phi 250\text{mm}$   $\phi 360\text{mm}$

【应用领域】

化学品: 电池原料 氢氧化锂 石墨 镍氧化物 金属氧化物等

医药品: 草药材料 中药荔枝 药膏等

食品: 玉米 芝麻 大豆 蔬菜 食盐 豆瓣酱 沙司原料等

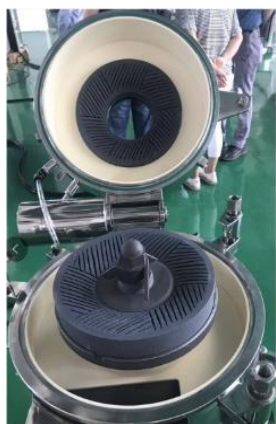
【Application】

Chemicals: Battery material Lithium hydroxide Graphite Nickel oxide Metal oxide etc.

Medicines: Herbal material Lychee Ointment etc.

Food: Corn soup Sesame Soybean Vegetable Salt Soy sauce etc.

## 设备结构 Equipment structure



内腔整体白色氧化铝 陶瓷内衬4mm厚

氧化铝纯度 $\geq 99.9\%$

Internal cavity: White alumina as a whole

Ceramic lining 4mm thickness

Alumina purity  $\geq 99.9\%$



日本进口刻度仪表

精度可调: 1~100小格

M1计算刻度表:  $0.25/100 = 0.0025$

$0.0025 \times 4 = 0.01\text{mm}$

$0.01\text{mm} = 10\mu\text{m}$

听到磨盘咯吱咯吱,设为起始点

Scale instrument imported from Japan

Precision adjustable: 1 ~ 100 small grids

M1 calculation scale:  $0.25/100 = 0.0025$

$0.0025 \times 4 = 0.01\text{mm}$   $0.01\text{mm} = 10\mu\text{m}$

Where contact noise was heard between the fixed and rotary grinders.

The gap is assumed to be 0 point.



腔体动平衡托盘

Cavity dynamic balancing tray

在粉碎腔体及上盖内设置夹套

通入冷水循环可降低粉碎温度

A jacket is set in the grinding chamber and the upper cover, and cold water is circulated to reduce the grinding temperature.



型号 Model	XRS-150	XRS-250	XRS-360
磨盘转速 Disk speed	1,800 r/min	3,000 r/min	1,500 r/min
电动机 Electric motor	3.7kW	11kW	22kW
磨盘尺寸 Disk size	$\phi 150\text{mm}$	$\phi 250\text{mm}$	$\phi 360\text{mm}$
机器尺寸 Equipment dimensions	W560×L350×H950mm	W890×L400×H1,300mm	W700×L960×H1,800mm
处理能力 Processing capacity	30 ~ 100kg	100 ~ 1,000kg	300 ~ 2,500kg
设备重量 Equipment weight	120kg	250kg	400kg

**在全世界的企业能制造石盘磨  
内衬全陶瓷只有本公司!  
开始独占供给电池行业!**

Enterprises all over the world can manufacture stone plate mills  
Only our company has full ceramic lining!  
Start to monopolize the battery industry!



- ❖所有原材料剪断·磨碎·微粉化·分散·乳化
- ❖粉碎物料粒径是通过调节磨盘的间距来获取
- ❖通过强力撞击·离心力·剪力进行粉碎
- ❖即使在运行中也可调整磨盘间距
- ❖Cutting, grinding, micronization, dispersion and emulsification of all raw materials.
- ❖The particle size of crushed materials is obtained by adjusting the spacing of grinding discs.
- ❖Crushing by strong impact, centrifugal force and shearing force.
- ❖The grinding disc spacing can be adjusted even during operation.



粉碎后原料  
Raw material after crushing

**4项中国专利 授权公告号**

4 Chinese patent authorization  
Announcement No.

- CN201621306068.3
- CN201820540582.6
- CN202010396314.3
- CN202020774460.0

**粉碎是由设备单独完成的  
不需要旋流器、袋式过滤器、鼓风机等  
高度有效地减少资本投资**

Crushing is done by the equipment alone.  
No need for cyclones, bag filters, blowers, etc.  
Highly effective in reducing capital investment.

**其他公司不具备的优点和特长**  
Advantages that other companies do not have

- ❖易清洗、拆卸简单,维修简单
- ❖设计新颖,操作方便
- ❖噪音低、破碎率高
- ❖干粉原料·湿粉原料两用
- ❖粉碎腔体及上盖内设有水冷套
- ❖可用于实验室
- ❖即使少量原料做实验可100%回收
- ❖符合CE·KCs·UL·CCC安全标准的设计
- ❖Easy to clean, easy to disassemble, easy to maintain.
- ❖New design, easy to operate.
- ❖Low noise and high crushing rate.
- ❖Dry powder raw material and wet powder raw material are both used.
- ❖Water cooling jacket in the crushing chamber and upper cover.
- ❖Can be used in laboratory.
- ❖Even a small amount of raw material can be 100% recycled for experiments.
- ❖Designed to conform CE/KCs/UL/CCC safety standards.



**控制箱采用变频系统转数  
可调温度可观的效果**

The control box adopts a frequency conversion system,  
the number of rotations is adjustable,  
and the temperature is considerable.



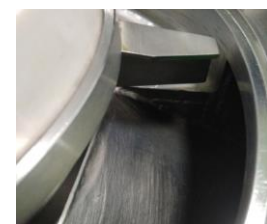
易拆卸三角羽翼, 清洗方便

Easy to disassemble triangular wing, easy to clean.



腔体内停滞物料少

Less stagnant materials in the cavity.



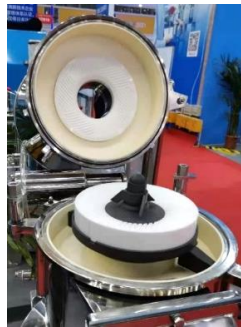
气流带动羽翼促进原料排料

The air flow drives the wings to promote  
the discharge of raw materials.

# 异物混入防止对策 Measures to prevent contamination



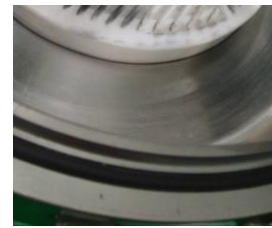
① 漏斗内原料接粉部  
特氟龙涂层  
① Raw material powder receiving part  
in hopper teflon coating



③ 内衬氧化铝  
③ Lined with alumina



④ 两个桨叶可选用耐磨性树脂  
或碳化钨制作  
④ Two blades are made of wear-resistant resin  
or tungsten carbide

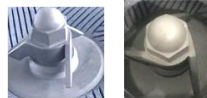


⑥ 腔体密封橡胶圈  
⑥ Cavity sealing rubber ring



② 氧化锆磨盘  
② Zirconia grinding disc

⑤ 固定螺丝全碳化钨合金  
制作或氧化铝陶瓷  
氧化铝纯度≥99.9%  
非常耐磨损



⑤ Fixing screw (all tungsten carbide alloy)  
Fabrication or alumina ceramics  
Alumina purity ≥ 99.9%  
Very wear resistant

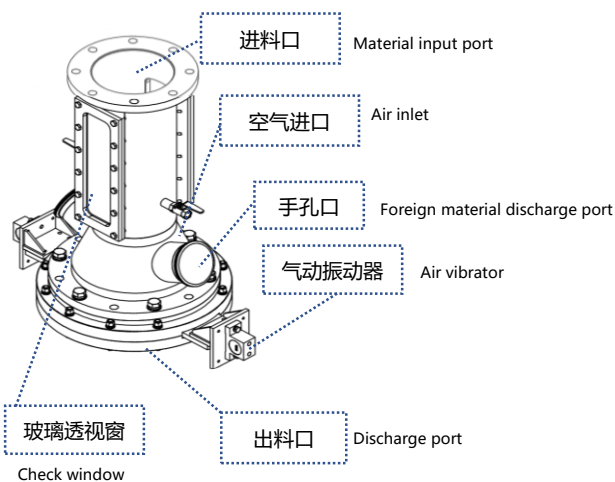


⑦ 固定螺栓每颗螺母都有  
标线作记号  
⑦ Fixing bolts (for each nut) Marking

## 课题研究 Topics

要求 原材料中的金属异物 微粉碎机被损坏 反措施

Problem Measures to prevent damage to pulverizers due to contamination of raw materials with metallic foreign matter.



新开发! New Development!

气动异物筛 Air vibrator Sifter



### ◆工作原理

- ◆ 安装在微粉碎机顶部,保护陶瓷部件免受异物的影响
- ◆ 通过空压振动器的振动将细粉供应给微粉碎机
- ◆ 金属部件等异物残留在筛网上
- ◆ 筛网的网目可自由选择
- ◆ 原料供应口和出口法兰也可选择所需的尺寸
- ◆ 异物的去除是手动的

### ◆ Working principle

- ◆ Installed on the top of the micro grinder to protect the ceramic parts from foreign matters.
- ◆ Fine powder is supplied to the micro pulverizer through the vibration of the air compressor vibrator.
- ◆ Foreign matters such as metal parts remain on the screen.
- ◆ Screen mesh can be freely selected.
- ◆ Raw material supply port and outlet flange can also choose the required size.
- ◆ Removal of foreign matters is manual.



即便是1颗螺钉混入原料  
对微粉碎机的磨盘是致命的打击!  
如果从以前开始有这样的机器...  
而且比较振动筛压倒性的小型!  
If screws were mixed in with the raw material,  
the rotor of the crusher would break into pieces.  
If only we had such a machine before...  
And it's much smaller than a vibrating sieve!

# 石盘要素 Disk elements

## 【陶瓷材质】 Ceramic material



氧化铝 Al<sub>2</sub>O<sub>3</sub>  
Alumina



氧化锆 ZrO<sub>2</sub>  
Zirconia

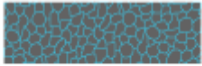


碳化硅 SiC  
Silicon carbide



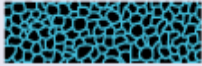
氮化硅 Si<sub>3</sub>N<sub>4</sub>  
Silicon nitride

### 当社の高密度・無気孔グラインダー



- 切れ味・処理能力に優れています。
- 傷が発生しません。

### 従来の無気孔グラインダー

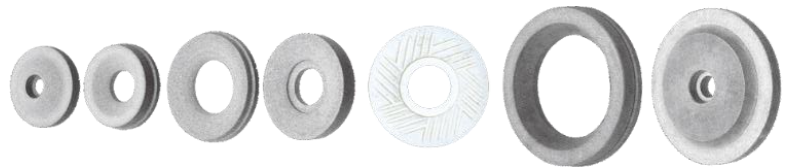


### 従来の多孔質グラインダー



专利号：No. CN108452903A  
本公司の高密度・无气孔石臼  
尖锐度・处理能力出众 防止细菌进入滋生

Patent No. : CN108452903A  
Our company's high-density, non porous stone mortar  
Excellent sharpness and handling ability to prevent  
bacteria from entering and breeding.

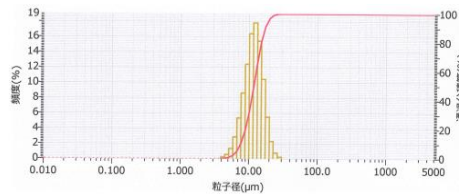


## 试验案例 Experimental cases

### NCM石盘磨粉碎试验 Grinding test of NCM stone disc mill



磨盘材质：SiC  
磨盘直径：φ250mm  
磨盘转速：1800r/min  
要求粒径：D50 12μm  
粉碎后粒径：D50 11.77μm



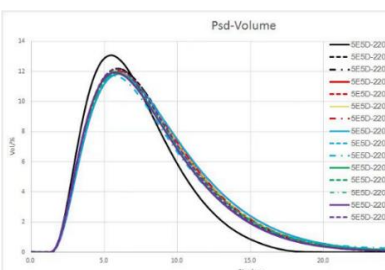
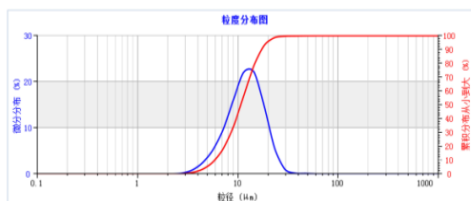
XRS-150

超微石盘磨试验机

MICRO STONE DISC MILL test machine



磨盘材质：ZrO<sub>2</sub>  
磨盘直径：φ250mm  
磨盘转速：2500r/min  
要求粒径：D50 10μm  
粉碎后粒径：D50 10.80μm



试验原料：三元系  
磨盘直径：φ360mm  
磨盘转速：1500r/min  
Test material: Ternary  
Grinding disc diameter: φ 360mm  
Speed of grinding disc: 1500r/min

2022年4月 XRS-360型  
实现了D50 = 5.9 μm ± 0.3 μm !  
开启了一个新的石盘磨时代!  
产量高达700kg/hr !

April 2022 XRS-360 Type  
Achieved D50=5.9μm±0.3μm!  
Opens a new era of stone disk grinding!  
Production capacity of 700kg/hr!





高新技术企业  
High-tech enterprise



高新技术产品认定  
High-tech product identification



中国科学院苏州纳米研究所产学研基地  
Suzhou Institute of Nanotechnology, Chinese Academy of Sciences, Designation of Joint Research Centers



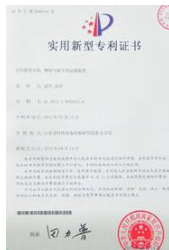
中南大学合作设立博士生工作站  
Collaboration with Central South University to establish a doctoral internship



ISO9001认证  
ISO9001 certification



ISO14001认证  
ISO14001 certification



专利证书  
Patent certificate



欧洲CE认证  
CE certification in Europe



韩国KCs认证  
KCs certification in Korea



进出口业务许可证  
License of import and export business

**兮然科技(江苏)有限公司**  
XiRan XiRan Technology (Jiangsu) Co., Ltd.

总公司 Headquarters

地址：江苏省苏州市苏州工业园区春辉路1号  
电话：0512-6285-6578  
邮箱：xiran\_china@126.com  
网址：www.sz-xiran.com

苏州第一工厂 Suzhou first factory

地址：江苏省苏州市苏州工业园区春辉路1号  
电话：0512-6285-6578

苏州第二工厂 Suzhou second factory

地址：江苏省苏州市苏州工业园区双泾街5号  
电话：0512-6726-2228

广东事务所 Guangdong branch office

地址：广东省惠州市惠城区演达大道16号 云天华庭24F  
电话：152-6240-3353  
邮箱：linliyue@sz-xiran.com

东京事务所 Tokyo branch office

地址：日本国东京都千代田区丸之内2-2-1 岸本大厦7F 721室  
电话：152-5041-4774  
邮箱：makino@sz-xiran.com



防爆设备安装认证  
Explosion-proof equipment installation certification



防爆设备维护认证  
Explosion-proof equipment maintenance certification

锂电设备 粉体机器

