



AIR FLOW DRYER

气流干燥机



研发

R&D



生产

Production



销售

Sales



售后

After sales



设备原理 Equipment principle

设备名：气流干燥机

用途：原材料干燥粉碎分级用

型号：XRG-200 XRG-400

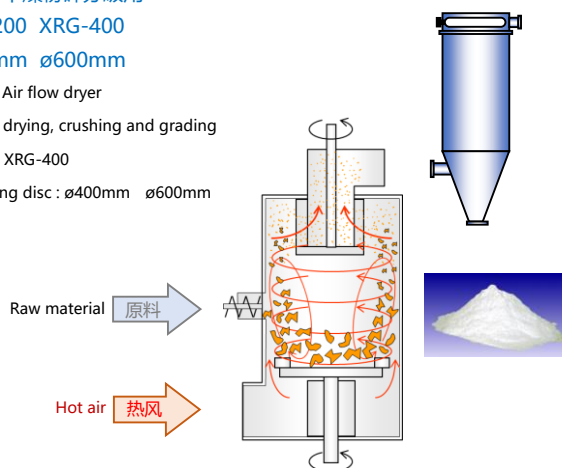
磨盘径：ø400mm ø600mm

Equipment name: Air flow dryer

Use: Raw material drying, crushing and grading

Model: XRG-200 XRG-400

Diameter of grinding disc: ø400mm ø600mm



【应用领域】

正极前驱体 负极石油石墨 正极添加剂氧化钨
氢氧化镁 碳酸钙 纤维素 金属氧化物 农药
色素 颜料 染料 合成洗涤剂 食品添加剂等

【Application】

Cathode precursor Anode petroleum graphite Cathode additive tungsten oxide
Magnesium hydroxide Calcium carbonate Cellulose Metal oxides Pesticides
Pigments Dyestuffs Synthetic detergents Food additives etc.

立式圆筒下方为粉碎部,供给口在中间部,上方有分级部。

从供给口进入的原料掉落到粉碎部,通过粉碎轮的旋转被分散·粉碎,再被下方上来的热风干燥。

干燥粉碎的粒子随着气流被运送至上方分级部。

细粉与气流一起通过分级部,集尘器进行回收。

粗粉再次掉落到下方粉碎部,被分散·粉碎·干燥。

分级轮的转速决定产品粒径。

还可以通过烘干机出口温度调节产品含水率。

The vertical cylinder is in the lower part of the crushing section, the middle part is in the feed port, and the upper part has a grading section.

The raw material supplied from the supply port is dropped into the crushing section, and is dispersed and crushed by the turning of the crushing wheel.

The material is scattered and crushed by the turning of the pulverizing wheel, and it is fiercely contacted with the hot air flowing from the lower part. It is effectively dried.

The dried and pulverized particles are transported to the upper stage according to the airflow.

The fine powder is recovered together with the airflow through the dust collector in the grading section.

The coarse powder falls down again to the crushing section of the lower part of the entity, and is dispersed - crushed - dried.

The product particle diameter is determined by the speed of the classifying wheel.

The product moisture content of the dryer outlet temperature is regulated.

设备结构 Equipment structure

风机拉动从下方的空气和破碎段的

热空气产生回旋流通过分级轮

通过调节分级轮和破碎盘的转速

可以改变产量和粒度

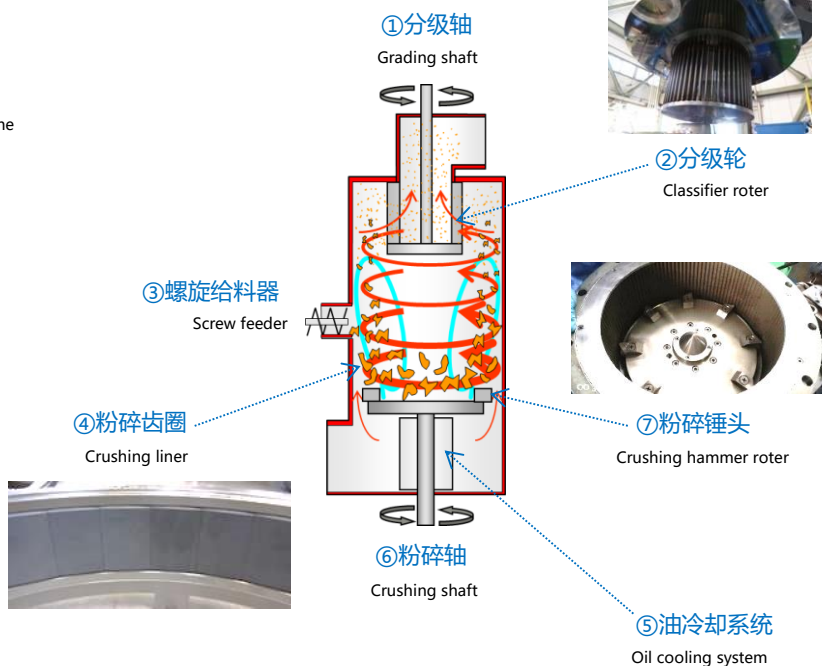
The blower pulls the air than the lower housing to draw hot air through the pulverizing part generates a cyclonic flow through the classifying rotor.

The speed adjustment of this classifying rotor and pulverizing disc can to change the processing capacity and particle size.



XRG-200

XRG-400



型号 Model	XRG-200	XRG-400
粉碎电机 Pulverization motor	22kW	45kW
分级电机 Classification motor	3.7kW	7.5kW
水分蒸发量 Evaporation of water	200kg/hr	400kg/hr
机器尺寸 Machine size	W1,400×L900×H1,800mm	W1,800×L1,300×H2,500mm
设备重量 Equipment weight	1,000kg	2,000kg

水分蒸发量是入口600度出口80度时的

Moisture evaporation is the value when the inlet is 600 degrees and the outlet is 80 degrees.

设备特点 Equipment features



双螺杆强制进料器

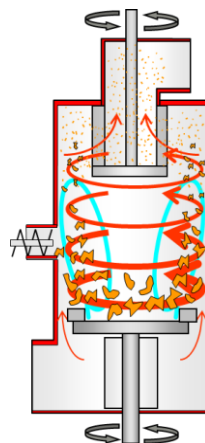
将坚硬、大块的原料送入干燥机时，
螺杆上的刀片将原料压碎，
并被强行送入双螺杆给料机。

Twin-screw forced feeder

Situation where hard, large pieces of raw material are fed into the dryer.

The blades on the screw crush the raw material and are forced into the twin-screw feeder.

原料强行送入
Forced feed of
raw materials

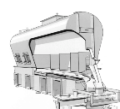


- ◆入口温度最高600℃
- ◆装配有高速旋转的强有力刀盘
- ◆可用于浆糊状·水溶剂的干燥
- ◆刀盘旋转而产生的涡轮气流可防止附着
- ◆可干燥超细粉末产品

- ◆Inlet temperature up to 600°C.
- ◆Equipped with powerful grinding and dispersing rotor with high speed rotation.
- ◆Can be used for drying paste and water solvent.
- ◆Turbo airflow generated by rotating grinding and dispersing rotor prevents adhesion.
- ◆Manufacture of ultra-fine powder dry products.

稍微做了对比

Slight comparison



连续间接加热型干燥机

Continuous Indirect Heating Dryer



真空间接加热型干燥机

Vacuum Indirect Heating Dryer



流动层干燥机

Flow Layer Dryer



喷雾干燥机

Spray Dryer

这些机器是停留时间较长！
分散不均！干燥物凝结产生结块！
需增设破碎工序！

These machines are longer dwell time! Uneven dispersion!

Dried material condenses and produces lumps!

Additional crushing process is needed!



气流干燥机停留时间短！
分散力强！干燥物结块少！
无需粉碎机和分级机！
兼具粉碎分级功能的气流干燥机！

Short residence time in case of air flow dryer!

High dispersion power! Less clumping of dried material!

No need for pulverizer and classifier! Air flow dryer with pulverizing and classifying function!



设备优势 Advantage of equipment

普通的气流式烘干机难以控制干燥品粒径，
原料状态经常呈黏土状、滤饼状，也容易发生干燥斑点。
本机因为装有强力粉碎-分级机构和高性能分级机，
容易调整产品粒径和产品含水率，不产生干燥斑点。

It is difficult to control the particle diameter of the dried product with the common airflow dryer.

Drying spots are easy to occur because of the clay-like and dehydrated cake-like state of raw materials.

This machine is equipped with a powerful crushing and dispersing mechanism and a classifier.

The particle diameter and moisture content of the product can be easily adjusted, and the drying spots are not generated.

◆调节分级轮的转速,可调节物料粒径

◆一般的气流干燥无法调整物料粒径

◆大颗粒物料进入粉碎干燥腔后进行2次粉碎

◆控制干燥机出口温度来微调物料含水量

◆Adjust the speed of the classifier wheel to adjust the material particle size.

◆General airflow drying can not adjust the material particle size.

◆Large granular materials are crushed twice after entering the crushing and drying chamber.

◆Control the dryer outlet temperature to slightly adjust the material moisture content.

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

与一般喷雾干燥的优势
Advantages over general spray drying

◆比喷雾干燥机、滚筒干燥机节能50~70%!

◆喷雾干燥系统的约50%的占地面积

◆系统整体简易,维修保养方便

◆50~70% energy saving than spray dryer, drum dryer!

◆About 50% of the floor space of spray drying system.

◆Easy maintenance of the whole system.



喷雾干燥机

Spray Dryer

干燥后含水率 Drying water content	干燥机出口温度 Dryer outlet temperature
1%以下	100℃ ~ 110℃
1% ~ 3%	80℃ ~ 100℃
3% ~ 5%	60℃ ~ 80℃
5% ~ 10%	50℃ ~ 60℃

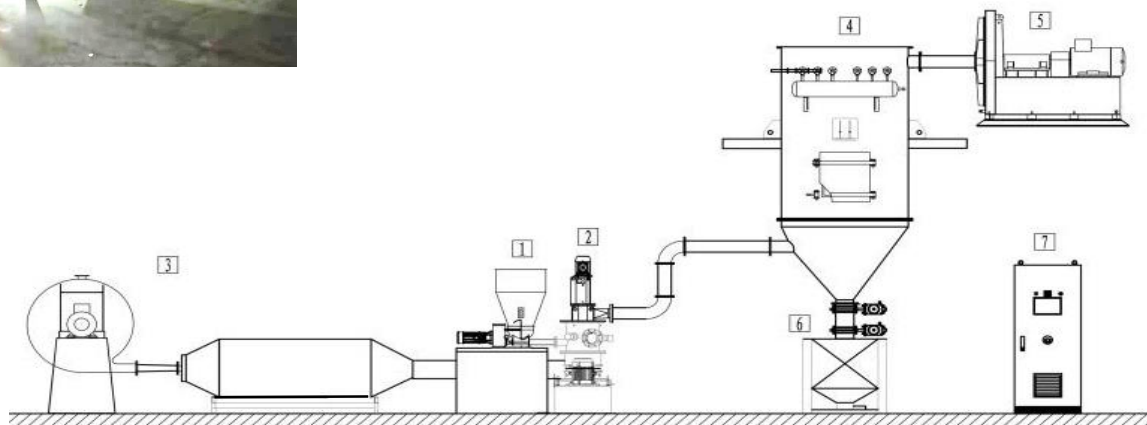
粒径·含水量控制
Particle size and water content control

气流干燥机系统图 Air flow dryer system diagram



系统配置

- | | |
|----------|--------------------------|
| ① 螺杆喂料系统 | Screw feeding system |
| ② 干燥主机 | Air flow Dryer |
| ③ 电热风炉 | Electric hot air furnace |
| ④ 布袋集尘器 | Dust collector |
| ⑤ 风机 | Blower |
| ⑥ 产品储罐 | Product tank |
| ⑦ 电气控制盘 | Electrical control panel |

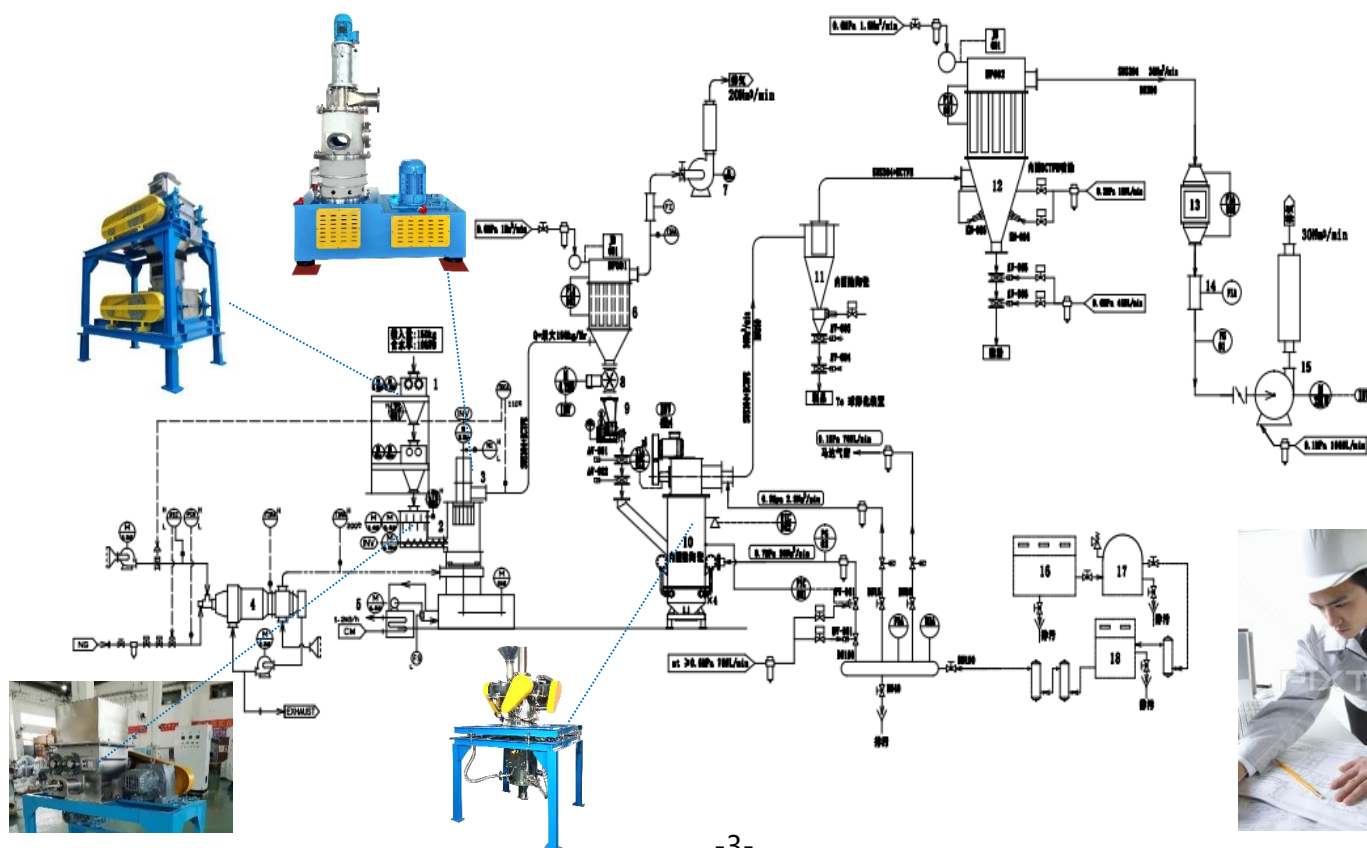


课题研究 Topics

要求 石油焦的粉碎生产线,石油焦难以粉碎 Problem Crushing line for Anode material petroleum residue carbon, which is difficult to crush.

新开发! New Development !

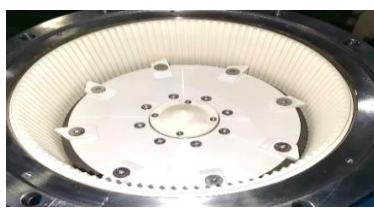
石油焦粉碎生产线 Crushing line for Anode petroleum residue carbon.





粉碎锤头

Crushing hammer roter



超硬规格 WC溶射

也可用陶瓷制作

Super Hard Specifications

WC Tungsten thermal spraying and

Ceramic production is also available.



陶瓷内衬

Ceramic lining

整体氧化铝

耐热和耐磨

Alumina Integral

Heat and wear resistant

❖新的研究开发！

❖ New method !



粉碎齿圈

Crushing liner

材料属性氮化硅 (Si₃N₄)

Material quality Silicon nitride (Si₃N₄)

❖出类拔萃的密度！

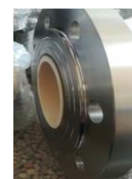
❖出类拔萃的硬度！

❖ Outstanding density!

❖ Outstanding hardness!

料斗内原料接粉部 特氟龙涂层

Raw material powder receiving part in hopper teflon coating.



粉碎后管道内衬氧化铝

After crushing, the pipeline is lined with alumina.

试验案例

Experimental cases

锂电池添加剂氧化钨干燥

Drying of lithium battery additive tungsten oxide



原料：氧化钨（浆糊状）18kg

干燥前含水率：50%

干燥时间：15分钟

干燥后含水率：0.83%

干燥后粉体重量：8.6kg

回收率：95.5%

Raw material : Tungsten oxide (paste) 18kg

Water content before drying : 50%

Drying time : 15 minutes

Water content after drying : 0.83%

Weight of powder after drying : 8.6kg

Recovery rate : 95.5%



适用例

Examples of application

原料名 Raw material name	原料含水率 Material moisture content	产品含水率 Product moisture content	产品粒度 Product particle size	热风温度 Hot air temperature	出口温度 Outlet temperature
氧化钨 Tungsten oxide	50%	0.8%	D50 1μm	250°C	100°C
碳酸钙 Calcium carbonate	60%	0.3%	D50 28μm	250°C	80°C
金属氧化物 Metal oxide	30%	0.1%	Dmax 8.5μm	250°C	110°C
色素 Food coloring	44%	2.3%	D50 3μm	200°C	120°C
颜料 Pigment	52%	0.8%	D50 0.8μm	200°C	100°C
染料 Dyes	55%	1.1%	Dmax 100μm	300°C	120°C
食品添加剂 Food Additives	60%	0.7%	Dmax 300μm	180°C	120°C
面粉 Flour	60%	4.0%	D50 28μm	160°C	80°C





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



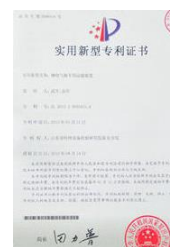
欧洲CE认证
CE certification in Europe



韩国KCs认证
KCs certification in Korea



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



专利证书
Patent certificate

XR 兮然科技(江苏)股份有限公司
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：中国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

锂电设备 粉体机器

