

ICROS MILL

冷冻粉碎机



研发
R&D



生产
Production



销售
Sales



售后
After sales



设备原理 Equipment principle

什么是冷冻粉碎机?

使用-196℃的液氮冷冻粉碎专用粉碎机。

当物质低于一定温度时,具有快速变脆的特性,称为低温脆性。

利用这种特性,在室温下难以粉碎的橡胶·树脂·含有大量油和水分的食物等也很容易粉碎。

冷冻粉碎方法用于各种行业,为工业发展做出了巨大贡献。

What is a refrigerated crusher ?

Use a special crusher for liquid nitrogen freezing and crushing at -196 °C.

When the substance is below a certain temperature, it has the property of rapid brittleness, which is called low-temperature brittleness.

Using this property, there is a large amount of rubber and resin that is difficult to crush at room temperature,

foods such as oil and moisture are also easily crushed.

The freezing crushing method is used in various industries and has made a great contribution to industrial development.

设备名: 冷冻粉碎机

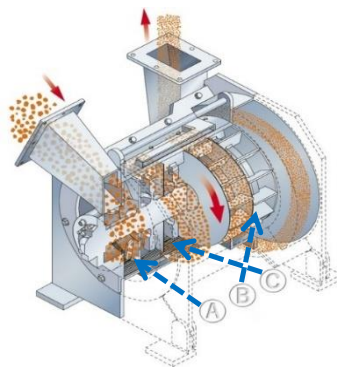
用途: 难粉碎原材料粉碎用

型号: IM250 IM400 IM600

Equipment name: Refrigeration crusher

Use: Difficult to crush raw materials

Model: IM250 IM400 IM600



粉碎原理

- ① 原材料沿着进料口进入设备后,与料斗中的超低温液氮接触、结冰,产生低温脆性。
- ② 冷冻产生低温脆性的原材料由分散叶片A分散到粗粉碎及外缘进而分散至粉碎室。
- ③ 进入粉碎室原料在B转子叶片·C衬垫的冲击以及叶片背面产生高速涡流进行剪切和粉碎。
- ④ 上述的效果转子叶片1段产生,转子叶片有4段,因此投入的原料在通过旋转体之前瞬间细粉化并立即排出到机器外部。

Crushing principle

- ① After the raw materials enter the equipment along the feeding port, they come into contact with the ultra-low temperature liquid nitrogen in the hopper and freeze, resulting in low temperature brittleness.
- ② The raw materials that produce low-temperature brittleness generated by freezing are dispersed from dispersion blade A to coarse crushing and outer edge, and then dispersed to the crushing chamber.
- ③ The raw material entering the grinding C liner and the back of the blade by generating high-speed vortices on the back of the blade.
- ④ The above effect is generated by 1 segment of rotor blades, and 4 segments of rotor blades, so the input raw material is instantaneous before passing through the rotating body. Finely pulverized and immediately discharged to the outside of the machine.

设备优势 Advantage of equipment



IM-250

任何以前都无法粉碎的是可能的!
Anything that could not be crushed before is possible!



流动性优
Excellent liquidity

无热变质
No thermal deterioration

不氧化
No oxidation

冷冻粉碎的特点

- ① 流动性优异
粉碎品的粒子变得光滑,提高产品流动性
- ② 无热变质
可以抑制常温环境下容易发生的粉碎热引起的品质劣化
- ③ 不氧化
从冷冻处理到粉碎均在充满氮气的环境中进行,在粉碎的同时可以抑制物质的氧化反应

Features of frozen crushing

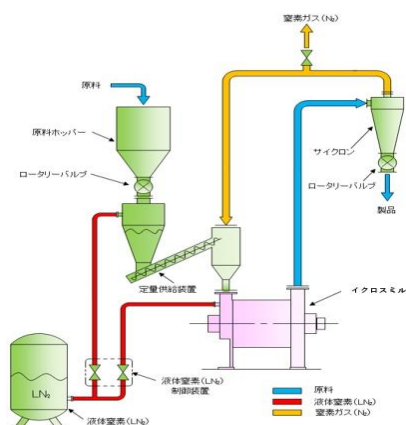
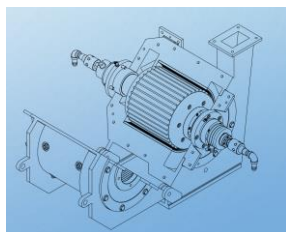
- ① Excellent liquidity
The particles of the crushed product become smooth, improving the fluidity of the product.
- ② No thermal deterioration
It can suppress the occurrence of normal temperature environment quality deterioration caused by crushing heat.
- ③ No oxidation
From freezing to crushing, it is carried out in a nitrogen-filled environment. While crushing, it can inhibit the oxidation reaction of substances.

【应用领域】

树脂 化学品 食品 保健食品
饮料 中药 颜料

【Application】

Resin Chemical Food Health Food
Beverage Chinese medicine Pigment



系统流程图

System flowchart

型号 Model	IM-250	IM-400	IM-600
安装功率 Installed power	15kW ~ 22kW	37kW ~ 55kW	60kW ~ 90kW

冷冻粉碎系统 Frozen pulverization system

为满足当今的各种需求，也针对室温难以粉碎的材料

我们开发了使用液氮的冷冻粉碎专用粉碎机

新加入我们产品阵容的冷冻粉碎机

给贵司提供高规格的冷冻粉碎系统

为了更加切合冷冻粉碎，我们以回转基干部为中心彻底评估了构造，

即便在严苛的超低温条件下也可稳定运行

由此，以往在常温或者-10℃低温条件下也难以粉碎的热塑性树脂

及含油食品也可利用液氮带来的低温脆性的原理进行稳定粉碎

冷冻粉碎机不局限于设备本体，我们也可以搭配专用给料设备

以及旋风分离器等附带设备，真正做到一条龙的制造和配置

To meet today's needs, materials that are difficult to crush at room temperature are also targeted.

We have developed a special grinder for refrigeration pulverization using liquid nitrogen.

A refrigeration shredder that has been added to our product lineup.

Provide your company with high-specification freezing and shredding systems.

In order to be more suitable for freeze crushing, we thoroughly evaluated

the structure centered on the rotary base cadre.

Stable operation even under harsh ultra-low temperature conditions.

As a result, thermoplastic resins that have previously been difficult to crush

at room temperature or -10℃ low temperature conditions,

And oily foods can also be stably crushed using the principle of low-temperature brittleness brought by liquid nitrogen.

The refrigeration grinder is not limited to the equipment body, we can also match it with special feeding equipment.

As well as cyclone and other ancillary equipment, truly achieve one-stop manufacturing and configuration.

Bearing forced oil lubrication device Cyclone separator and rotary valve



热塑性树脂和含有油的
食品等可以稳定粉碎！

Thermoplastic resins and those containing



辅助设备 Liquid auxiliary equipment



液氮浸渍螺杆进料器
Liquid nitrogen impregnated screw feeder



液氮供给控制装置
Liquid nitrogen supply control device



轴承强制油润滑装置
Bearing forced oil lubrication device



旋风分离器·旋转阀
Cyclone separator and rotary valve

试验案例 Experimental cases

测量在多大程度上可以做到低于颗粒尺寸

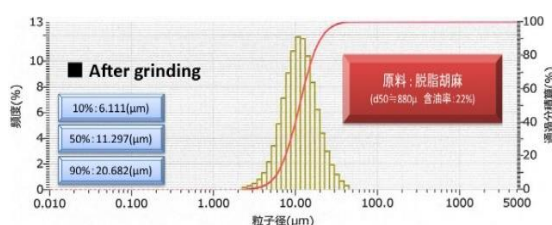
Measurement of particle size

原料名称 Material name	粉碎后粒度比率 Ratio of particle size after milling
聚丙烯 Polypropylene	710μm 以下 : 96.3% Less than 710μm : 96.3%
PLA树脂 PLA resin	710μm 以下 : 94.2% Less than 710μm : 94.2%
白胡椒 White Pepper	250μm 以下 : 94.0% Less than 250μm : 94.0%
山椒 Japanese prickly ash	180μm 以下 : 97.0% Less than 180μm : 97.0%
花生 Peanut	90μm 以下 : 96.0% Less than 90μm : 96.0%
茶叶 Tea	63μm 以下 : 98.0% Less than 63μm : 98.0%
海带 Kelp	63μm 以下 : 98.0% Less than 63μm : 98.0%
煮干 Dried sardine	75μm 以下 : 99.0% Less than 75μm : 99.0%
烤咖啡豆 Roasted coffee beans	90μm 以下 : 99.0% Less than 90μm : 99.0%

难粉碎原料的颗粒大小·容量·LN₂耗损

Particle size, capacity, and LN₂ consumption of difficult to grind materials.

原料名称 Material name	粉碎后粒度 Particle size after milling	处理能力 capacity	设定温度 Temperature setting	LN ₂ 消耗量 LN ₂ consumption
PE PE	d50=73.5μm	59.7kg/h	-100	3.25kg/kg原料 Use 3.25kg for 1kg of raw material
EVA EVA	d50=89.6μm	40.8kg/h	-70	5.04kg/kg原料 Use 5.04kg for 1kg of raw material
PP PP	d50=73.8μm	33.4kg/h	-120	9.71kg/kg原料 Use 9.71kg for 1kg of raw material
天然橡胶 Natural rubber	d50=82.6μm	23.6kg/h	-100	12.60kg/kg原料 Use 12.60kg for 1kg of raw material
脱脂芝麻 Skimmed sesame	d50=11.3μm	46.9kg/h	-100	6.94kg/kg原料 Use 6.94kg for 1kg of raw material



上述粉碎示例都是250型的参考值

The above crushing examples are all reference values for the 250 type.



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



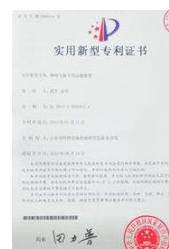
欧洲CE认证
CE certification in Europe



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：linliuyue@sz-xiran.com

锂电设备 粉体机器

