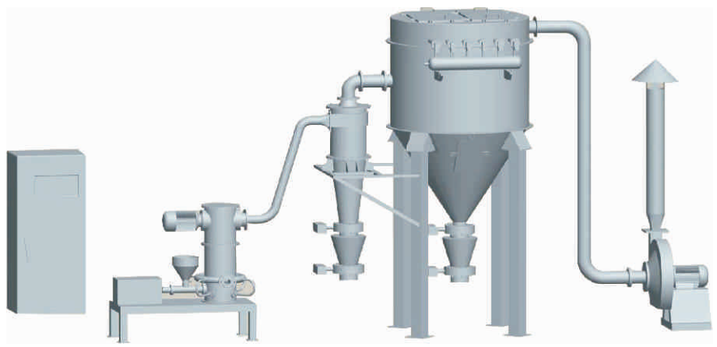
# 电子级材料专用流化床气流粉碎机

## Fluidized–bed jet mill specially for Electronics materials



### 工作原理

流化床气流粉碎机是一种用高速气流来实现干式物料超细粉碎的设备。它由粉碎喷嘴、分级转子、螺旋加料器等组成。物料通过螺旋加料器进入粉碎室，压缩空气通过特殊配置的超音速喷嘴向粉碎室高速喷射，物料在超音速喷射流中加速，并在喷嘴交汇处反复冲击、碰撞，达到粉碎。被粉碎物料随上升气流进入分级室，由于分级转子高速旋转，粒子既受到分级转子产生的离心力，又受到气流粘性作用产生的向心力，当粒子受到离心力大于向心力，即分级径以上的粗粒子返回粉碎室继续冲击粉碎，分级径以下的细粒子随气流进旋风分离器、除尘器收集，气体由引风机排出。

### 特 点

• 精密陶瓷涂层，100%杜绝物料粉碎过程中带来的铁污染。保证粉碎物品纯度。特别适用于对铁含量要求极高的电子材料。如钴酸锂、锰酸锂、磷酸铁锂、磷酸亚铁锂、三元材料、四氧化三钴、碳酸锂、镍钴酸锂等电池正极材料。

• 不升温，由于物料是在气体膨胀状态下粉碎，所以粉碎腔体温度控制在常温状态，温度不会升局。

• 磨损小，由于主要粉碎作用是粒子相互冲击碰撞，高速粒子与壁面很少碰撞，可适用粉碎莫氏硬度九级以上物料。

• 能耗低，与其它类型气流粉碎机相比节能30%～40%。

• 对易燃，易爆物料可用惰性气体作工质粉碎。

### PRINCIPLE

The QYF fluidized—bed jet mill is actually such a device as using the high¬speed air flow to perform the dry-type superfine pulverizing. It consists of milling nozzle,grading the screw feeder to the milling chamber, where the pressure air is activating the high¬speed injection by means of special ultrasonic nozzle. Therefore, the materials will be ground by being accelerated, impacted and collided repeatedly in the midst of ultrasonic injection Flow. The ground materials will be brought together with up flow to the grading chamber. The centrifugal force produced by the fast rotation of grading rotator together with the centripetal force by the pneumatic adhesion act on the grading grains.When the centrifugal force on the grain is greater than the centripetal force.the coarser grains above the grading range will be swirled back to the milling chamber for further milling. The thinner grains below the grading range will be blasted to cycloneseparator and collector, whereas the purified air will be vented outside from the draft.

### FEATURES

Precision ceramic coatings, 100% eliminate the iron pollution from material classification process to assure the purity of the products. Especially suitable for iron content requirements of the electronic materials, such as cobalt high acid , lithium manganese acid, lithium iron phosphate, Ternary Material, lithium carbonate, and Acid lithium nickel and cobalt etc battery cathode material.
No rise in temperature: The temperature will not increase as the materials are pulverized under the working conditions of pneumatic expansion and the temperature in the milling cavity is kept normal.
Endurance:Applied to materials with Mohs1 Hardness below Grade 9, since the milling effect only involves the impact and collision among the grains rather than the collision with the wall.
Energy-effective:Saving 30%~40% over the Equivalents.
Inert gas can be used as media for milling flammable and explosive materials.

## 主要技术参数

### Technical Parameter

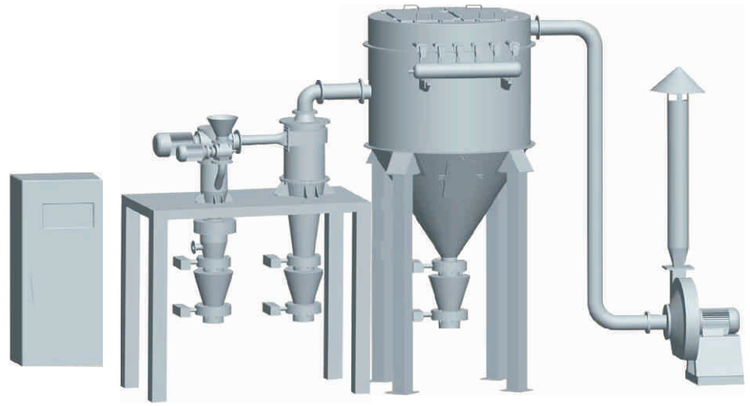
| 参数 Parameter / 型号 Model | QYF-100 | QYF-150 | QYF-260 | QYF-400 | QYF-600 | QYF-720 | QYF-800 | QYF-1000 |
|---|---|---|---|---|---|---|---|---|
| 生产能力(kg/h) Capacity(kg/h) | 0.5~8 | 5~100 | 50~200 | 80~380 | 200~500 | 400~1000 | 600~2200 | 800~3000 |
| 空气耗量(m3/min) Air Consumption(m3/min) | 1.5 | 3 | 6 | 10 | 20 | 40 | 60 | 80 |
| 工作压力(Mpa) Working Pressure(Mpa) | 0.75~0.85 | 0.75~0.85 | 0.75~0.85 | 0.75~0.85 | 0.75~0.85 | 0.75~0.85 | 0.75 0.85 | 0.75 0.85 |
| 进料粒径(目) Feed Diameter(mesh) | 45~150 | 60~325 | 60~325 | 60~325 | 60~325 | 60~325 | 45~200 | 45~200 |
| 粉碎细度(μm) Grinding Size(μm) | 0.5~30 | 0.5~30 | 0.5~30 | 0.5~30 | 0.5~30 | 0.5~30 | 5~150 | 5~150 |
| 装机功率(kw) Energy Consumption Power(kw) | 20 | 40 | 60 | 95 | 188 | 376 | 560 | 728 |





# 电子级材料专用高精度微米分级机

## Air Classifier specially for Electronics materials



### 工作原理

涡轮式分级机是带有二次进风及水平安装分级转子的强制型离心分级机，它由分级转子、导叶片整流器、加料器等组成。物料由上筒身加入，外界一次风对物料风筛作用，使粒子充分分散， 并上升至分级区，由于分级转子高速旋转，粒子既受到分级粒子产生离心力，又受到气流粘性作用产生的向心力，当粒子受到离心力大于向心力，即分级径以上的粗粒子沿容器壁面旋下，外界二次空气通过导流部整流成均一旋流，将混杂或粘附于粗粉中的细粒分离干净，分离后粗粒从下部粗粒口排出，分级径以下细粒随气流进旋风分离器、除尘器收集，净化后气体从引风机排出。

### 特 点

• 精密陶瓷涂层，100%杜绝物料分级过程中带来的铁污染。保证分级物品纯度。特别适用于对铁含量要求极高的电子材料。如钴酸锂、锰酸锂、磷酸铁锂、磷酸亚铁锂、三元材料、四氧化三钴、碳酸锂、镍钴酸锂等电池正极材料。全新设计的结构，切割精度高，粒度分布窄，分级效率高，性能可靠。

• 适用于干法微米级产品的精细分级，可分级球状、片状、针状的颗粒，也可对不同密度的颗粒进行分级。

• 可与各类粉磨设备串联使用，组成循环生产线，提高工作效率；也可多级分级机串联使用，同时生产多个粒度段的产品。

• 采用先进的自动化控制，运行状态实时显示，操作简便；并可与其他串联设备控制系统组成中控系统。

### PRINCIPLE

The turbine grader, as a forced centrifugal grader with secondary air entry and horizontal grading rotator is composed of grading rotator, guide vane rectifier and screw feeder. The materials are fed through the upper cartridge, and the grains will be seived and well distributed by the incoming air, which brings the grain to the grading zone.

The centrifugal force produced by the fast rotation of grading rotator together with the cetripetal force produced by the pneumatic adhesion both act on the grading grains. When the centrifugal force on the grain is greater than the cetripetal force, the coarser grains above the grading range will be swirled down along the container wall. The secondary air will be rectified to uniform cyclone through the guide vane and separate the thinner grains from the coarser ones. The separated coarser grains will be blown out from the discharge port. The thinner grains will come to cyclone separator and collector, whereas the purified air will be vented outside from the draft.

### FEATURES

Precision ceramic coatings, 100% eliminate the iron pollution from material classification process to assure the purity of the products. Especially suitable for iron content requirements of the electronic materials, such as cobalt high acid , lithium manganese acid, lithium iron phosphate, Ternary Material, lithium carbonate, and Acid lithium nickel and cobalt etc battery cathode material.
The newly designed structure is with high precision cutting precision, narrow particle distribution, high classifying efficiency and reliable performance.
Applicable to precision classifying for dry micron products, can classify round shape, flake shape or needle shaped particle, and can classify particles with different density.
Can formulate a circular production line with all kinds of milling equipments to improve the working efficiency; and also can use series of classifier to produce products in different particle range at the same time.
Adopt advanced automatic control and operation status real-time display, simple operation; And can formulate central control system together with other series equipment control system.

## 主要技术参数

### Technical Parameter

| 参数 Parameter / 型号 Model | WFJ—260 | WFJ—400 | WFJ—600 | WFJ—800 | WFJ-1200A |
|---|---|---|---|---|---|
| 分级粒径 Grinding Size | 2~15 | 2~15 | 2~15 | 2~15 | 2~15 |
| 处理量(kg/h) Capacity(kg/h) | 50~200 | 300~1000 | 500~1500 | 1000~3000 | 1500~3500 |
| 转子功率(kw) Rotor Power(kw) | 3.0 | 5.5 | 7.5 | 11×3 | 55x1 |
| 系统风量($m^3$/h) System Airflow($m^3$/h) | 600 | 2100 | 5000 | 7500 | 8800 |
| 空气耗量($m^3$/min/Mpa) Air Consumption($m^3$/min/Mpa) | 1.25/0.7 | 1.8/0.7 | 2.5/0.7 | 4.5/0.7 | 6.0/0.7 |