Professional
Powder Equipment
Manufacturer

TENCAN

Product Brochure

Powder Equipment
Milling Technology
Powder Materials

LARGE GRINDING EQUIPMENT

Cell mill - Stirring mill

WRMJ

Vertical stirred mill for cell disruption and fine grinding. Alloy stirrers, water cooling, and compact design ensure high efficiency.

https://www.planetaryballmills.com/products/grinding-series/large-grinding-equipment/cell-mill-stirring-mill.html

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TENCAN POWDER

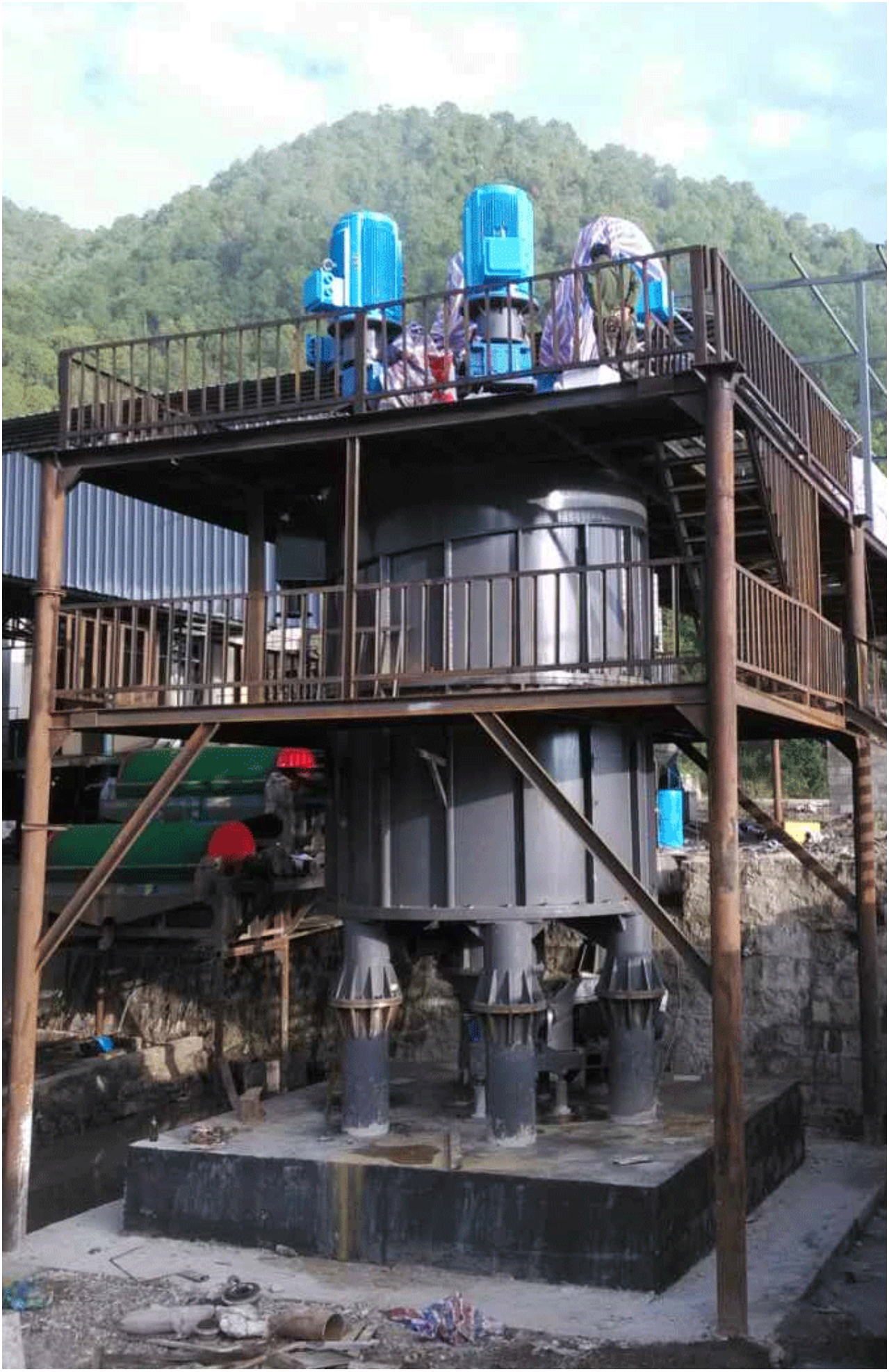
Product Overview

Vertical stirred mill for cell disruption and fine grinding. Alloy stirrers, water cooling, and compact design ensure high efficiency.

Product Introduction

It integrates gravity and fluidization technology, multi-stage alloy stirring rod structure, water cooling device, reduces slurry viscosity and improves grinding efficiency, small footprint, vertical installation, bottom feeding, top discharging or top feeding and bottom discharging. It is quick to install and maintain, has high efficiency, low energy consumption, and no three waste emissions. Products of different specifications can be obtained by adjusting the feed.

Cell mill - agitator grinder is a wet grinding equipment that drives grinding media (such as ceramic beads, glass beads or alloy balls) through mechanical agitation to efficiently crush and disperse materials. Its core structure consists of a high-speed rotating agitator, a wear-resistant grinding chamber and a dynamic separation system. It uses the violent collision and shearing between the medium and the material to achieve ultra-fine grinding, and the discharged particle size can reach submicron to nanometer levels (0.1-50μm). This equipment is suitable for the continuous production of high-hardness, high-purity materials, with low energy consumption, high precision and process stability. It is widely used in the fields of non-metallic mineral powder, new energy materials and fine chemicals.



Gold ore, iron ore, zircon sand, pyrite, manganese dioxide, zirconium silicate, zirconium oxide, iron oxide red, manganese ferroalloy, ferrite, lead-zinc ore, metal oxides, mica, talc, graphite, rare earth, iron phosphate Wet ultra-fine grinding of lithium, silica, alumina, aluminum hydroxide, magnesium hydroxide, brucite, bentonite, kaolin, sulfur, calcium carbonate, coal water slurry, heavy gold stone, fertilizer, etc. metallic ore and non-metallic ore powder. The feed fineness requirement is 45μm-1mm.

1. **Non-metallic mineral deep processing** : Ultra-fine grinding of calcium carbonate, mica, talc, kaolin and other minerals to improve product whiteness and added value.
2. **New energy material preparation** : Nanoscale dispersion and homogenization of lithium battery positive and negative electrode materials (such as lithium cobalt oxide, graphene) and photovoltaic materials (such as silicon powder).
3. **Chemicals and Coatings** : Wet grinding of pigments, dyes and inks to ensure color uniformity and dispersion stability.
4. **Electronics and Ceramics Industry** : Fine processing of electronic ceramic powder and phosphor powder to meet high-precision molding requirements.
5. **biomedicine** : Preparation of drug nanoparticles and liposomes to improve drug solubility and bioavailability.

Technical parameters

Device model	Equipment power	2 m m Fineness	Solid content%	Pulp output/ton/ H	Power consumptionKW/T/ H	Wear/yuan/T
WRMJ1500	160KW	D60-D98	50-70	1.8-3	37-124	1.7-4.9
WRMJ 4000	250KW	D60-D98	50-70	2.6-5.8	30-134	1.1-5.1
WRMJ6000	355KW	D60-D98	50-70	4.5-9.5	26-165	0.5-2.4
WRMJ80000	1200KW	D30-D50	50-70	20.8-60.5	21-66	0.7-3.1
WRMJ100000	1750KW	D30-D50	50-70	55.5-100	17-58	0.5-2.7

Working Principle

1. **power input** : The motor drives the agitator to rotate at high speed through the coupling, driving the medium in the grinding chamber to form a vortex motion.
2. **grinding action** : The medium and material collide repeatedly under strong shear force, impact force and extrusion force, and the particles are gradually broken down to the target fineness.
3. **dynamic separation** : The ground slurry is discharged through a gap screen or centrifugal separation system, and the coarse particles are returned to the grinding area for continued processing to ensure the uniformity of the finished product.
4. **temperature control** : The built-in cooling jacket or external circulation cooler controls the temperature in real time to prevent the degeneration of heat-sensitive materials or overheating loss of media.

Product Features

Fully automatic continuous production, high efficiency, low energy consumption, adjustable fineness of 0.5-45μm, narrow particle size distribution, easy start-up with load, short process path, currently the largest mature equipment in China.

1. **Efficient grinding performance** : The linear speed of the mixer can reach 10-20m/s, the medium filling rate is high (60-90%), the unit energy consumption is low (0.5-5kW·h/t), and the processing capacity can reach 0.1-10 tons/hour.
2. **Precise and controllable granularity** : By adjusting the medium size, rotation speed and residence time, the discharge fineness can be flexibly adjusted, and the D50 particle size distribution is narrow (≤±0.5μm).
3. **Fully enclosed structure** : Leak-proof design combined with inert gas protection to avoid material oxidation or contamination, suitable for flammable, explosive or highly reactive materials.
4. **Modular configuration** : Optional temperature control system (-20℃ to 150℃), online particle size monitoring device and automated feeding/discharging system to adapt to different process requirements.
5. **Long life design** : The mixer and lining are made of highly wear-resistant materials such as silicon carbide and zirconia, with a continuous operating life of over 8,000 hours and low maintenance costs.

Accessories & Customization

Accessories
Grinding jars, heating elements, sample holders, control modules and other matching accessories can be selected according to the product configuration.

Customization
For voltage, capacity, chamber size, process temperature or application requirements, please contact TENCAN for a suitable configuration.