ultra centrifugal mill for temperature sensitive sample

The core advantage of the Ultra Centrifugal Mill is the use of centrifugal force-driven high-speed rotary cutter head, with a variety of sieves, to achieve high-throughput processing of samples and highly reproducible grinding results.

Ultra Centrifugal Mill

The Ultra Centrifugal Mill is engineered for rapid, analytical-grade grinding of medium hardness, brittle, fibrous, and heat-sensitive samples. With advanced intelligent control and robust automation, it delivers precise, consistent results for food, agriculture, pharmaceuticals, chemicals, biological, industrial, and environmental samples.

Technical Features

1. **Intelligent control system:** Full touch LCD screen for real-time monitoring and control of speed, load, operating cycle, and abnormal status.
2. **Double crushing mechanism:** Coarse crushing and fine grinding in one step, greatly improving sample preparation efficiency.
3. **Multiple grinding modes:** Supports dry and freezing grinding for various sample properties.

4. **Quiet and safe structure:** Low-noise operation, mechanical lock, and electronic sensor switch ensure operator safety.
5. **Anti-splash design:** Funnel-shaped inlet prevents dust and sample rebound.
6. **Multi-specification consumables compatible:** Interchangeable knives, sieves, and containers for diverse experimental needs.
7. **Strong automation scalability:** Optional auto-sampling and cyclone separator for high-volume processing.
8. **Overload protection:** Motor temperature control and auto-shutdown extend equipment lifespan.

Advantages

1. Gentle treatment: Short grinding times prevent denaturation of heat-sensitive samples.
2. High consistency: Centrifugal grinding ensures uniform particle force and compact particle distribution.
3. Easy to clean: Modular design enables simple disassembly and cleaning, avoiding cross-contamination.
4. Flexible operation: Easy setup and use for novices, suitable for reusable laboratory workflows.
5. Low-temperature processing: With liquid nitrogen, enables freezing embrittlement for challenging samples like fat-containing or thermoplastic polymers.

Working Principle

Samples are loaded through the anti-splash inlet, falling into the grinding chamber. High-speed blades provide initial impact and shear, followed by centrifugal acceleration pushing samples against the sieve for further refinement. Particles smaller than the sieve holes are collected, while larger ones continue grinding. Short process duration minimizes thermal buildup, and optional freezing media like liquid nitrogen further suppress heat for sensitive materials.

Application Areas

1. Food & Agriculture: Coffee beans, grains, spices, dried fruits, straw, seeds, etc.
2. Pharmaceuticals & Chemicals: Tablets, capsules, chemical powders, polymers.
3. Biological Samples: Bones, collagen, plant tissues.
4. Industrial Materials: Rubber, paper, textiles, powder coatings, electronic waste.
5. Environment & Soil: Coal samples, soil analysis, waste recycling.
6. Special Material Preparation: Efficient pulverization of difficult materials via freezing pretreatment.

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Model	**ZM200**
Application Areas	Areas Agriculture, Chemistry, Synthetic Materials, Pharmaceuticals, Metallurgy, Engineering, Electronics, Building Materials, Environment, Resource Recycling, Biology, Food
Sample characteristics	Soft, medium-hard, brittle, fibrous Comminution principle Shear, friction
Feed size	less than 10mm
Discharge size	≤40μm
Speed	5000rpm to 20,000rpm adjustable
Rotary knife type	6-tooth rotary knife, 8-tooth rotary knife, 12-tooth rotary knife, 24-tooth rotary knife
Grinding kit	material stainless steel, titanium
Screen size	0.08, 0.20, 0.50, 0.80, 1.00, 1.50, 2.00, 4.00mm
Tray volume	1000ml standard tray

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Model	**ZM200**
Cyclone separator collection bottle	50ml to 5L optional
Drive	three-phase AC motor with frequency converter
Power supply	220Vac, 50Hz
Power	1500W
Weight	22kg
Dimensions	358x280x280mm