Your trusted partner in bioprocess

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Vetor Science & Technology

Sample pretreatment equipment

Trusted by Labs Worldwide

Vector Laboratory Grinder&Mill

About Us

Company Profile

Founded in 2011, Vector Science&Technology is a high-tech manufacturer providing complete solutions for the power monitoring and biotechnology industries.
Committed to our value “Make power monitoring&life science easier”, we provide sustainable and innovative overall process solutions for life science industry and biotechnology down stream field.

Business Scope

- We provide sustainable and innovative overall process solutions for**life science industry and biotechnology down stream field.**
  Focusing on supplying equipment and consumables for biological instruments and consumables for recombinant protein drugs, vaccine preparations, antibody drugs, cell therapy, and genetic engineering etc.

- Vecotr is also an expert in comprehensive solutions of smart grid online monitoring , intelligent diagnosis, operation and maintenance of power equipment.
  Vector has mature R&D and production experience in the field of power monitoring including various multifunctional PD detector, portable PD detector, GIS and transformer PD online monitoring system, cable fault early warning and location system, cable online monitoring system, etc.
  We have our own R&D centre and can accept OEM orders.

Talent team

200+ employs

Currently employs 200+staff members, comprising 1 PhD holder,5 postgraduate, 30 undergraduates, and over 100additional production personnel.

Faclity

3,000 square metres

Vector Science & Technology possesses a production area of 3,000 square metres, alongside multiple research and development centres nationwide. It maintains a highly trained and experienced R&D and production team, complemented by a professional pre-sales and after-sales service team.

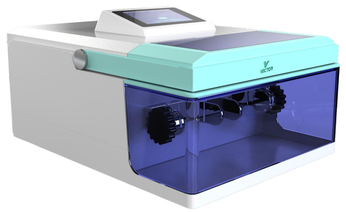
R&D center

More than 3 R&D centers

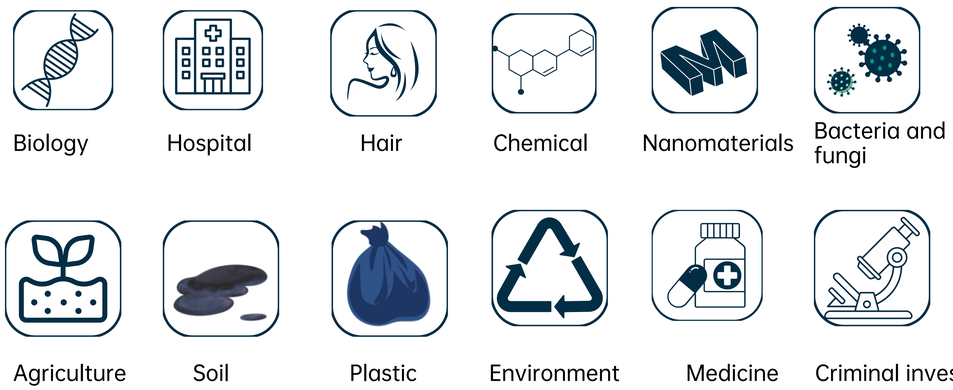
Established in collaboration with Xi'an Jiaotong University, our R&D center located in Xi'an City. Vector also has R&D centers in Suzhou and Shanghai. Possesses an independent technical and software development team alongside a comprehensive quality management system.

VEC-Tissuelyser-II

The VEC-Tissuelyser-II high-throughput grinder is capable of rapidly grinding and homogenising hard, soft and elastic samples. It effortlessly grinds, pulverises, mixes and lyses cells within seconds. Grinding can achieve a particle size of 5 micrometres. Designed to meet the requirements of physical and chemical analysis laboratories, it is equipped with grinding jars of various volumes and materials, enabling dry, wet and cryogenic grinding, as well as cell lysis and DNA/RNA extraction.



Application



Features

High-performance: Capable of rapid and efficient grinding of 192 samples, with a shaking timer ranging from 0 to 9999 seconds. Adapters can be easily swapped to accommodate different sample volumes.

Comprehensive range of accessories: Choose from adapters for 2mL x 28, 2mL x 48, 5mL x 12, or 2mL x 96 centrifuge tubes, or 25mL/50mL grinding jars.

Intelligent operation: Featuring a large touchscreen display, the system is simple to operate and safe to use, delivering highly reproducible grinding results.

Zero sample contamination: The compartmentalised design utilises sealed sample tubes to prevent cross-contamination.

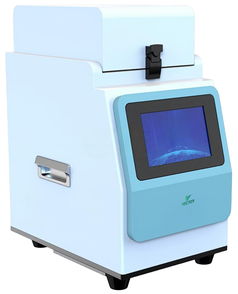
Preservation of sample properties: By pre-chilling both the samples and the grinding jars, the system successfully processes heat-sensitive and elastic materials, minimising sample evaporation and preserving the sample composition.

Technical Parameters

Model	Tissuelyser-II
Maximum injection size	≤8mm
Final output particle size	~5 μm (There are differences in grinding fineness for different materials)
Handle the sample volume	1-192pc
Specifications	2ml* 96-well plate *2/2ml*28*2/25m grinding jar *2/50ml grinding jar *2
2ml* 96-well plate *2/2ml*28*2/25m grinding jar *2/50ml grinding jar *2	2(Number of grinding jars that can be accepted)
Vibration frequency setting	0-70Hz
Typical crushing time	2min
Dry grinding	Yes
Wet grinding	Yes
Cryogrinding	Yes
Clamp device	Fastening device with automatic center positioning
Types of grinding jars	Screw cap type grinding jar
Screw cap type grinding jar	Titanium alloy, stainless steel, Teflon, polyethylene (other materials can be customized)
Grinding tube size	15ml/25ml/50ml
The crushing time setting is digitally displayed	0 seconds - 9999 seconds
Drive	inverter motor
Power	150W
Dimesion	490mm*380mm*270mm
Weight	26.7kg
Motor power	90W
Speed	2800rpm

VEC-Tiss-12/24/48 Basic Type Grinder

The VEC-Tiss Basic Type Grinder adopts a unique vertical-up-down integrated vibration mode. Through the high-frequency reciprocating vibration, impact and shearing of the grinding beads (zirconia, steel beads, glass beads, ceramic beads), it quickly achieves the purpose. This enables the ground samples to have more thorough, more uniform, better sample repeatability, and no cross-contamination between samples.



Application

Biology | Hospital | Chemical | Nanomaterials | Bacteria and fungi | Animal Tissue

Agriculture | Plastic | Environment | Medicine | Criminal investigation

Features

High operational efficiency with numerous options：The system can handle up to 2ml * 12/24/48 samples within 1 minute. The extracted protein has a higher specific activity and the nucleic acid fragments are longer.

No cross-contamination：During the crushing process, the sample tubes remain fully sealed, ensuring that the samples are completely retained within the tubes and avoiding cross-contamination between samples as well as external contamination.

User-friendly operation interface.

Excellent stability：The integrated vibration mode ensures more：thorough grinding and better stability; it is quiet; it has a dedicated emergency stop physical button to prevent accidents; the driving system uses an original brushless silent pulse motor, ensuring stable performance.

Technical Parameters

Model	VEC-Tiss-12/24/48
Application	Homogenization, grinding, cell disruption, homogenate preparation, material dispersion, sample mixing, oscillation
sample handling	Within 15 seconds, the processing capacity can handle 12/24/48 samples simultaneously, including the applicability of liquid nitrogen freezing adapters with 12-bit, 24-bit and 48-bit configurations.
Compatible sample volume	12*2mL/24*2mL/48*2mL can be customized into various specifications of grinding tubes as per your requirements.
Operation	Touch screen
Feed size	No requirements. Adjust according to the adapter
Discharge size	~5μm
Clamp device	Fastening device with automatic center positioning
Homogenization rate	0-70Hz/s
Operation time	0 seconds -9999 seconds, variable
Accelerate and decelerate	Reach a higher/lower speed within 2 seconds
Noise level	＜65DB
Grinding way	Wet grinding, dry grinding and low-temperature grinding
Dimesion	260*380*495mm

VEC-FS-24L/32L/48L/64LHigh-throughput Automatic Grinder

The VEC-FS-24L/32/48L/64L series high-throughput automatic tissue grinder instruments adopt imported motors, anti-corrosion materials, enhanced motion axes and other various automated configurations. It is a fast, highly efficient and multi-tube automated grinding instrument. It can extract and purify the original DNA, RNA and proteins from various sources (including soil, plant and animal tissues/organs, bacteria, yeast, fungi, spores, paleontological specimens, etc.).

Application

Features

- Flexible grinder: By changing different main units and adapters, it can handle up to 384 tubes;
- High safety: The samples work in a sealed disposable grinding tube, protecting the safety of the operators;
- No waste: The samples work in a sealed disposable grinding tube, not wasting any sample, in and out as they come;
- High automation level: Start with one click, wait for the result;
- High stability: With lid-opening protection function, built-in noise-reducing cover and adapter pressing cover, multiple protections;
- Simple operation: Just one knob is needed to fix the adapter;
- More efficient:Imported components authorized by Germany's IBIDI, with more powerful effect.

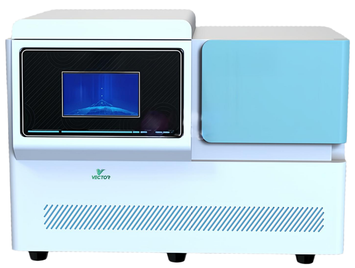
Technical Parameters

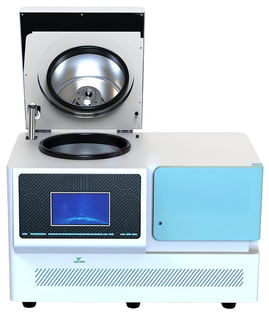
Model	VEC-FS-24L	VEC-FS-32L	VEC-FS-48L	VEC-FS-64L
Sample Throughput	24*(0.2-0.5) mL、242 mL、4/12/245 mL、8* (7-15) mL、2*25/50 mL Grinding Jars	32*(0.2-0.5) mL、322 mL、4/12/245 mL、8* (7-15) mL、2*25/50 mL Grinding Jars	48*(0.2-0.5) mL、482 mL、4/12/245 mL、8* (7-15) mL、2*25/50 mL Grinding Jars	64*(0.2-0.5) mL、642 mL、4/12/245 mL、8* (7-15) mL、2*25/50 mL Grinding Jars
Customizable	Custom grinding tubes of various specifications available			
Rated Power	90 W	150 W	200 W	250 W
Frequency	0-70 Hz			
Particle Size	~5 μm			
Time Setting	0-9999 seconds, user-definable			
Noise Level	< 55 DB			
Grinding Ball Diameter	0.1-30 mm			
Grinding Ball Material	Stainless Steel, Chrome Steel, Zirconia Oxide, Tungsten Carbide, Quartz Sand			
Grinding Mode	Wet grinding, Dry grinding, Cryogenic grinding			
Display Mode	Touch screen display for intuitive and convenient operation			
Data Storage	Stores up to 20 sets of experimental data, customizable modes for different samples			
Cycle Mode	Cycles through pre-set parameters continuously to minimize human interference			

VEC-FS-C Automatic Freezing Grinder

The VEC-FS-C Automatic Freezing Grinder is equipped with a refrigeration function, capable of reaching -50°C or -30°C, which better preserves the activity of the samples. The unique vacuum device of the vacuum freezing grinder ensures a higher grinding speed while reducing noise interference. The freeze-cooling bench-top grinder features a low-temperature freezing platform, which better protects the sample's activity.

○ Refrigeration: Protecting sample components
○ Temperature Control: Meeting various experimental conditions
○ High-efficiency Grinding: Up to 192 samples can be processed in one batch

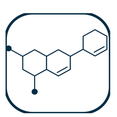




Application

Biology

Hospital


Chemical

Nanomaterials

Bacteria and fungi

Animal Tissue

Agriculture

Plastic

Environment

Medicine

Criminal investigation

Hair

Features

- Refrigeration adjustable: -50°C to room temperature
- High-throughput sample processing: Can handle up to 192 samples.
- Excellent grinding effect: Output particle size is 5μm.
- Fully enclosed grinding: No cross-infection.
- Stable repeatability: The same grinding procedure yields the same result.
- Program storage: Can store 20 sets of custom grinding programs.
- Time-saving and labor-saving, fast and convenient.
- Low noise: <55dB, using brushless variable-frequency motor.
- No need for liquid nitrogen operation, high safety.
- No wear-prone parts design, electromagnetic locking protection
- Stainless steel inner cavity, convenient for cleaning and disinfection
- No regular maintenance required.

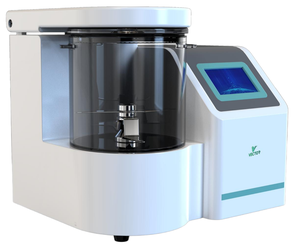
Technical Parameters

Model	VEC-FS-C
Application	Tissue Homogenization, Cell Lysis, Material Dispersion, Grinding
Max. Sample Capacity	192 Samples Simultaneously
Compatible Volumes	0.2–0.5mL (24/32/48/64 places), 2mL (24/32/48/64/96 places), 5mL (4/12/24 places), 10–15mL (8 places), 25mL/50mL (2 places), 96-Well Plates
Control & Display	Touchscreen Interface, Intuitive Operation
Data Storage	20 Sets of Customizable Modes (Heart/Spleen/Lung/Kidney/Bone/Skin/Hair)
Mixing Mode	Continuous Cycle Mode for Consistent Results
Temperature Control	-50°C to RT, ±0.5°C Accuracy
Key Performance	Particle Size ~5μm; Accel/Decel: 2s to Max/Low Speed
Dynamic Range	Frequency 0–70Hz; Time 0–9999s
Grinding Options	Wet, Dry, Cryogenic Grinding
Components	2+ Stations, Self-Centering Fixture, PTFE/Alloy Steel Adapters
Ball Specs	0.1–30mm (Stainless/Chrome/Zirconia/Tungsten/Quartz)
Safety	Lid-Lock, Overrun Protection
Dimensions/Weight	700×410×450mm / 82.5kg

Optional accessory

VEC-DS Knife-type Centrifugal Grinder

The VEC-DS knife-type centrifugal grinding instrument is an apparatus that crushes and homogenizes samples through high-speed rotating blades or screens. By relying on high rotational speed and a variety of accessories, it can crush samples to the analytical fineness within a short period of time, providing new processing ideas for dealing with relatively hard samples. It is mainly used in fields such as food, biology, materials, and chemical engineering.



Application

Biology
Hospital
Chemical
Nanomaterials
Bacteria and fungi
Agriculture
Plastic
Environment
Medicine
Criminal investigation

Features

- Multiple sets of grinding data can be set, facilitating the storage of a large amount of sample data. Various types of grinding heads and cup specifications are available for selection, meeting different experimental requirements. Options include dry grinding, wet grinding, and freezing grinding.
- The variable-volume gravity lid can move up and down in conjunction with the guide rod, effectively reducing the grinding space and preventing the samples from sliding off due to high-speed rotation and adhering to the inner wall of the container, resulting in better sample homogenization effect.
- Multiple operation modes are available for selection, with a wider speed adjustment range (rotation speed can be adjusted).
- The magnetic lock design is convenient and efficient, ensuring safe operation.
- A high-power brushless motor is selected, providing stronger output and more efficient sample shearing.
- A double-layer 4-blade design ensures more thorough sample grinding.

Technical Parameters

Model	VEC-DS-800	VEC-DS-5L
Speed	1000~15000 rpm	500~4000 rpm
Blade Material	Stainless steel; titanium blades available upon request (shared row)	
Sample Throughput	700 mL	5 L
Rated Power	2000 W (shared row)	
Time Setting	0~9999 s (user adjustable, shared row)	
Feed Size	< 50 mm	≤ 130 mm
Output Particle Size	< 300 μm	≤ 300 μm

Optional accessory

Knife head

Titanium alloy knife head

5L PC cup(autoclavable)

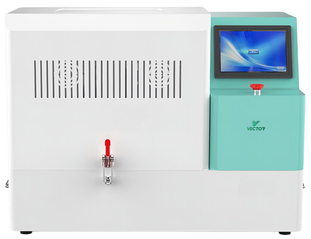
5L SS cup

Double-layer four-leaf stainless steel rotating cutter

Double-layer four-leaf titanium-coated rotating cutter

VEC-G Planetary Ball Mill

The VEC-G Planetary Ball Mill is a dedicated and high-performance mill for preparing ultrafine powders. This series of instruments adopts an advanced planetary structure, which has increased the grinding efficiency by more than ten times. The four-tank loading method ensures that different materials do not interfere with each other. The gear transmission method ensures the consistency and repeatability of experiments. In one experiment, four samples of different sizes and materials can be obtained simultaneously.



Application

Chemical Mineral Environment Agriculture Soil

Features

- Suitable for long-term sample preparation and continuous operation.
- Adjustable speed, stable operation, capable of grinding the samples to a fineness of micrometers (dry grinding) and nanometers (wet grinding).
- Automatic reverse rotation to prevent sample accumulation.
- Multiple different material grinding jars available for selection.
- Advanced operation interface, simple and convenient.

Technical Parameters

Model	VEC-2G & VEC-2GL	VEC-4G & VEC-4GL
Min. Processing Volume	50mL per jar (shared)	
Max. Processing Volume	4×100 mL (VEC-2G/2GL)	4×1500 mL (VEC-4G/4GL)
Main Disc Speed	35–435 r/min (VEC-2G/2GL)	35–335 r/min (VEC-4G/4GL)
Jar Rotation Speed	70–870 r/min (VEC-2G/2GL)	70–670 r/min (VEC-4G/4GL)
Operation Mode	Keypad (VEC-2G, VEC-4G, VEC-5G)	Touchscreen (VEC-2GL, VEC-4GL)
Emergency Stop	No (VEC-2G)	Yes (VEC-2GL, VEC-4G, VEC-4GL, VEC-5G)
Grinding Chamber Light	LED blue light, auto-switch (VEC-2G/2GL/4G/4GL)	/ (VEC-5G)
Jar Volume Range	50mL–100mL (VEC-2G/2GL)	50mL–1500mL (VEC-4G/4GL)
Grinding Jar Materials	Stainless steel (304/316), WC, Nylon (MC), PU, PTFE, PP, PA, Zirconia (ZRO), Alumina (ALO), Agate (SIO), vacuum/PU/vacuum alumina/vacuum agate jars, etc.	
Grinding Media Diameter	3–20 mm (shared)	
Grinding Media Mass	100–400 g (VEC-2G/2GL)	200–1000 g (VEC-4G/4GL, VEC-5G)
Grinding Media Materials	Stainless steel (304/316), WC, Agate (SIO), Zirconia (ZRO), Alumina (ALO), PTFE, PP, PA, PU, etc. (shared)	
Gear Ratio (Planet/Jar)	1:2 (shared)	
Final Particle Size	<100 nm (shared)	
Grinding Mode	Dry/Wet grinding (shared)	
Cryogenic Cooling	Yes (optional add-on, shared)	
Inert Gas Protection	Yes (shared)	
Forward/Reverse Rotation	Yes (shared)	
Forward/Reverse Rotation	Yes (shared)	

VEC-G Planetary Ball Mill

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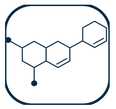
Application


Chemical

Pharma

Medicine

Biology

Agriculture

Plastic

Environment

Criminal investigation

Features

- It operates smoothly and quietly with low noise and high efficiency, ensuring that the samples are evenly distributed across the entire mesh surface.
- The top cover is made of stainless steel, in line with pharmaceutical standards, preventing powder from overflowing during the sieving process.
- The ultrasonic wave has a power adjustment function. Depending on the specific properties of different materials, such as their specific gravity, particle size, and structural characteristics, different powers can be selected to achieve high-efficiency sieving.
- The industrial-grade sieve has a 100-mesh coarse mesh material of brass, mainly due to the good ductility of the brass mesh. The 100-mesh fine ones are made of 304 stainless steel. The sieve materials include brass, tin bronze, and stainless steel. 2.36um - 100um are processed with nickel plating, which not only improves the mesh accuracy but also prevents mesh deformation, making it sturdy, wear-resistant, and durable.

Technical Parameters

Name Model	Mechanical Vibratory Sieve Shaker VEC-SF-U2	Ultrasonic Vibratory Sieve Shaker VEC-SF-U1	Ultrasonic Vibratory Sieve Shaker (Wet) VEC-SF-U1-WT	Mechanical Vibratory Sieve Shaker (Wet) VEC-SF-U2-WT
Amplitude				
Standard Sieves	1-8 layers	1-8 layers	1-6 layers	1-6 layers
Sieve Diameter				
Single Batch Capacity	≤3 kg	≤3 kg	≤3 kg	≤3 kg
Time Setting	0-99 min 59 s	0-9999 s (shared for dry/wet ultrasonic/ electromagnetic models)	1-9999 s	
Measuring Range	0.038-3 mm	5 μm-125 mm	5 μm-125 mm	20 μm-125 mm
Dry/Wet Sieving	Dry only	Dry only	Dry & Wet	Dry & Wet
Power	125 W	125 W	250 W	250 W
Frequency	/	Ultrasonic generator frequency: 18~35 kHz	/	/
Speed	1420 r/min	/	3000 r/min	3000 r/min
Additional Functions	/	/	/	/

Sieve mesh

Stainless Steel Mesh			Nylon Mesh		
Mesh Count	Mesh Count	Mesh Count	Mesh Count	Mesh Count	Mesh Count
10 mesh	120 mesh	280 mesh	10 mesh	120 mesh	220 mesh
20 mesh	150 mesh	300 mesh	20 mesh	140 mesh	250 mesh
30 mesh	180 mesh	400 mesh	30 mesh	150 mesh	300 mesh
50 mesh	200 mesh	450 mesh	50 mesh	160 mesh	350 mesh
80 mesh	220 mesh	500 mesh	80 mesh	180 mesh	400 mesh
100 mesh	250 mesh	600 mesh	100 mesh	200 mesh	500 mesh

Stainless steel mesh

Nylon mesh