Grinder Products

Please keep contact with Grinder if you have any further questions.

Mortar Grinder MG100
Mortar Grinder MG200
Planetary Mill BM05/BM08
Micro Ball Mill GT200
Knife Mill HM100

Tweeter TW100
Multi-Functional Mill CM100M
Cutting Mill CM200
Ultra Centrifugal Mill FM200
Vibratory Disc Mill DP100

Jaw Crusher JC5
Jaw Crusher JC6
Vibratory Disc Mill VM1
Vibratory Disc Mill VM3
3D Shaker Mixer M10

Vibratory Feeder VF100
Rotary Sample Divider RS200
Vibratory Shake Shaker SS200
Smart Graphite Digestor
Ultrasonic Bath

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Geological and mineral

——for more perfect sample preparation solution
Jaw Crushers JC5/JC6

Vibratory Disc Mill VM1/VM3

Vibratory Disc Mill DP100

Free sample testing
Grinder company provides the most professional and perfect sample preparation scheme and technical support for the customers. Application laboratory can process your sample free and recommend the most suitable instrument for you.
Jaw Crusher JC5\JC6

Grinder Jaw Crushers are used to process medium-hard, hard, brittle and tough sample fast and gently. The Jaw plates have 6 kinds of material to choose. This series of products with superior technical and safety performance, so it is your ideal choice in the laboratory and enterprise production for the sample preparation.

Applications

- **Mining and metallurgical industries**: niobium and titanium alloy, vanadium iron, chrome vanadium, tungsten carbide, ore, coal, slag, coke
- **Chemical products**: wide variety of chemical industry raw materials
- **Geological and mineralogical**: rock, granite, basalt, barite, silicate
- **Ceramic industry**: talc, sintered clay, sintering ceramic, electric ceramic
- **Building materials**: bauxite, slag brick, quartz, cement

**Application Examples**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Instrument</th>
<th>Gap setting</th>
<th>Sample characteristic</th>
<th>Attention</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>limestone</td>
<td>JC5 host with jaw plate of manganese steel</td>
<td>2mm</td>
<td>hard</td>
<td>the feed size less than 90mm</td>
<td>the sample can be collected immediately after feeding</td>
</tr>
<tr>
<td>ferrochrome</td>
<td>JC5 host with jaw plate of tungsten carbide</td>
<td>2mm</td>
<td>hard</td>
<td>the feed size less than 90mm</td>
<td>the sample can be collected immediately after feeding</td>
</tr>
<tr>
<td>marble</td>
<td>JC6 host with jaw plate of manganese steel/tungsten carbide</td>
<td>0.5mm</td>
<td>hard</td>
<td>the feed size less than 40mm</td>
<td>the sample can be collected immediately after feeding</td>
</tr>
</tbody>
</table>

**Working Principle**

The sample enters the grinding chamber via the anti-splashing hopper. The crushing is proceeded inside the wedge-shaped shaft space between two jaw plates. One jaw plate is fixed, while the other jaw plate is driven by a bent axle to perform oval movement with the continuous rotation of the motor. The sample is crushed due to extrusion caused by constant movements of the jaw plate and moves downward under the effect of gravity. In case the grain size of the sample is less than the lower opening gap of jaw plates, it will fall to the drawer receiver at the lower part of the machine.

**JC5 Technical Advantages**

- **High-safety design**
  - The feed hopper of JC5 can roll over to one side or be removed easily. In this way, operators can clean the grinding chamber rapidly. The samples are collected in a drawer receiver so that operators can easily collect sample results.

- **Eco-friendly design**
  - We have equipped thoughtful dust-protection design for JC5 jaw crushers. In addition, in order to avoid environmental pollution caused by tiny dust particles, we equipped dust discharge connectors for the crushers. Operators can easily remove the dust particles inside the crusher by connecting industrial dust collectors with such dust discharge connectors.
Zero point adjustment to compensate the wear

After the mill used for a certain period, the jaw plates will be subject to wear (the wear condition varies depending on different materials) and the gap between the jaw plates increases. This means that the real jaw plate gap data is larger than that displayed on the device, and the grinding result will have deviations that make no repeatability. The jaw crusher can eliminate the effects caused by wear through the zero point adjustment so that can guarantee the reliability of grinding results.

JC6 and JC5 are basically the same in application field and work principle. And both has the advantage of zero point correction to compensate for wear. Unlike JC5, JC6 is designed for desktop. JC6 features in the compact design, easy operation and the high final fineness of sample (d90 < 0.5 mm).

JC6 and JC5 are basically the same in application field and work principle. And both has the advantage of zero point correction to compensate for wear. Unlike JC5, JC6 is designed for desktop. JC6 features in the compact design, easy operation and the high final fineness of sample (d90 < 0.5 mm).

Jaw plates in different materials

Stainless steel
Stainless steel can avoid rust. This material is recommended when dealing with low hardness samples.

Tungsten carbide
The tungsten carbide material is abrasion resistant. Even for samples with mohs hardness of 7-8, the tungsten carbide jaw plate can be used for a long time.

Zirconium oxide
Zirconium oxide jaw plate are specially used to deal with ceramic materials that contain no heavy metals, such as the crushing of dental, optical glass and other medical ceramics. In addition, the material will not bring color pollution to the crushed samples.

Steel of heavy- metal-free
Steel of heavy- metal-free can avoid scraping against the samples to cause heavy metal contamination. This material jaw plate is the ideal choice for the heavy-metal-free grinding pretreatment of the non-corrosive samples.

Manganese steel
Manganese steel is suitable for processing hard and medium-hard samples. The structure of this kind material will become denser after being squeezed, so it will gradually harden in use (cold hardening).

Industrial plastic (optional)
Industrial plastic has the characteristics of high toughness and drug resistance. It is suitable for hard and brittle samples. It will not cause metal pollution to the processed samples, which can guarantee the high purity of the sample.

<table>
<thead>
<tr>
<th>Feed size</th>
<th>JC5</th>
<th>JC6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final fineness</td>
<td>&lt;2mm</td>
<td>&lt;0.5mm</td>
</tr>
<tr>
<td>Speed</td>
<td>500-1000rpm/min</td>
<td>500-1000rpm/min</td>
</tr>
<tr>
<td>Collector capacity</td>
<td>5L</td>
<td>3L</td>
</tr>
<tr>
<td>Jaw plate width</td>
<td>99mm</td>
<td>59.5mm</td>
</tr>
<tr>
<td>Gap setting</td>
<td>0-10mm</td>
<td>0-11mm</td>
</tr>
<tr>
<td>Zero point adjustment</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Rated power</td>
<td>2.2KW</td>
<td>1.1KW</td>
</tr>
<tr>
<td>Power supply</td>
<td>380V, 50Hz</td>
<td>220V/50Hz</td>
</tr>
<tr>
<td>Instrument size(W<em>D</em>H)</td>
<td>440×930×1090mm</td>
<td>450×630×490mm</td>
</tr>
<tr>
<td>Package size(W<em>D</em>H)</td>
<td>800×1165×1330mm</td>
<td>85×900×780mm</td>
</tr>
<tr>
<td>Weight</td>
<td>330Kg</td>
<td>83Kg</td>
</tr>
</tbody>
</table>
Vibratory Disc Mills are mainly used for sample preparation of spectral analysis. The device is especially suitable for fast fine grinding without loss. No matter the materials are medium hard, hard, brittle or fibrous the VM series grinder can perform sample preparation treatment in dry conditions (namely dry grinding). There are five kinds of grinding sets in material: hard steel, tungsten carbide, agate, zirconium oxide and high manganese steel, which can meet your extensive application requirements.

**Working Principle**

The VM series of Vibratory Disc Mill crush sample via pressure, impact and friction. The quick-action clamping device makes the grinding set firmly attached onto the vibrating plate. Through transmission, the vibrating plate will generate drastic three dimensional vibrating so as to produce giant impacting, frictional and grinding force on the grinding set, and such forces focus on samples to make them become powder in a very short time.

**Applications**

- **Ceramics and glass**: oxide ceramics, glass
- **Environmental area**: soil, paving stone, slag
- **Minerals & Metallurgy**: coal, coke, corundum, ore, slag
- **Building materials**: cement, stone, concrete

**Application Examples**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sample</th>
<th>Accessories material</th>
<th>Manganese steel</th>
<th>Attention</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before grinding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After grinding</td>
<td></td>
<td>manganese steel</td>
<td></td>
<td>dry, the feed size less than 5mm</td>
<td>5min</td>
</tr>
</tbody>
</table>

The above is only partial information of items, for more details please contact Grinder Company.
Features and advantages (VM1)
- Compact floor type design saves space.
- Large sample processing capacity, up to 1.8Kg per batch.
- High final fineness (d95 <75 μm).
- Safe and rapid pneumatic fastening device.
- The design of safety protection lock can guarantee safe operation.
- Grinding sets made of five different kinds of materials are available for choices.
- Unique assistance device facilitates the movement of grinding cups.
- Grinding cups of five kinds of volumes can be equipped; one to three samples can be processed for each batch.
- 2.2 KW strong power motor and the grinding efficiency is 30% higher than that of similar products.

Technical Advantages

Convenient and safe operation
VM1 vibrating cup type grinders have high level security. The pneumatic fastening device can rapidly fix grinding sets on a grinding platform; and its leakproofness guarantees the safety of the operation process. In addition, we have also designed safety protection locks for VM1 machines, which can guarantee the safety of operators during operation.

Large processing capacity of samples, efficient operation
The VM1 uses a motor with 2.2KW power, therefore it has strong power and its grinding efficiency is 30% higher than that of similar products. According to test results, 95% of samples can be ground below 75 micrometers within 3 minutes. In addition, the high-volume grinding set (the maximum volume is 2,000ml) can prepare more samples at a time for laboratory analysis so as to meet your requirements of processing a large amount of samples.

Auxiliary assistance device
With the latest unique design, the auxiliary assistance device is used for conveniently carrying the heavy grinding cup.

Features and advantages (VM3)
- Extremely short grinding time
- Speed 700-1500rpm, continuous adjustable
- High final fineness (d95 <75μm)
- Quick-action clamping device for grinding set
- Agate recognition for automatic speed reduction to 700rpm
- Five kinds of materials of grinding sets for choice

Unique design of mobile assistance for grinding cup
Unique rapid fastening design facilitates secure positioning and safe operation

Advantages of grinding sets
- Gap between dish and cover edge for easy opening.
- Sealing with O-ring design.
- All the grinding sets have protective jacket made of stainless steel to ensure long service life.
- All the grinding sets are printed with identification marks (volume, material).
- There is positioning and assistance design at the bottom of grinding sets for easy fixing and remove.
For various applications, we can supply different material of grinding sets. Please choose the suitable material according to your requirement.

Hardened steel

The main characteristic of hardened steel is corrosion resistance and rust prevention. For processing corrosive sample, grinding set of this kind of material is a good choice.

Agate

This material is heavy-metal-free and can guarantee the grinding purity. It is suitable for processing soil and some medium-hard sample. If you want a high grinding purity, you can choose the grinding set of this kind material.

High manganese steel

High manganese steel is of medium hardness, suitable for the treatment of non-corrosive, low hardness common samples. Because of its relatively low cost, if there s no strict requirement on the purity of the sample, this material grinding set is recommended.

Tungsten carbide

The hardness of tungsten carbide is high and similar to that of diamond. It is suitable for processing high-hardness sample. Two kinds of the volume (500ml and 800ml) are available for choice.

Zirconium oxide

Zirconium oxide has excellent physical and chemical properties such as high hardness, high toughness, high abrasive and corrosion resistance. This material grinding set is the best choice for handling chemicals such as ceramics.

Technical Data

<table>
<thead>
<tr>
<th>Feed size</th>
<th>VM1</th>
<th>VM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;25mm</td>
<td>&gt;25μm</td>
<td>&gt;25mm</td>
</tr>
<tr>
<td>&lt;15mm</td>
<td>&lt;75μm</td>
<td>&lt;75μm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Speed</th>
<th>VM1</th>
<th>VM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>900rpm/min</td>
<td>700~1500rpm/min</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grinding time setting</th>
<th>VM1</th>
<th>VM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>10000rpm/100rpm/min</td>
<td>10000rpm/100rpm/min</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Batch quantity</th>
<th>VM1</th>
<th>VM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>20~1600g</td>
<td>20~250g</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The volume of the grinding set</th>
<th>VM1</th>
<th>VM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 ml/800 ml/1000 ml/2000 ml</td>
<td>50ml/100ml/250ml</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grinding set material</th>
<th>VM1</th>
<th>VM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>hardened steel, tungsten carbide (only 500 ml and 800 ml), agate, zirconium oxide, high manganese steel</td>
<td>hardened steel, tungsten carbide, 50ml, 100ml, 250ml, agate, (speed 700rpm)</td>
<td>zirconium oxide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rated power</th>
<th>VM1</th>
<th>VM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2kW</td>
<td>1.5kW</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power supply</th>
<th>VM1</th>
<th>VM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>380V/50Hz</td>
<td>220V/50Hz</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instrument size (W<em>D</em>H)</th>
<th>VM1</th>
<th>VM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1040<em>70</em>130mm</td>
<td>800<em>555</em>1255mm</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Package size (W<em>D</em>H)</th>
<th>VM1</th>
<th>VM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>132<em>102</em>182mm</td>
<td>1130<em>1035</em>1470mm</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Net weight</th>
<th>VM1</th>
<th>VM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>650g</td>
<td>250g</td>
<td></td>
</tr>
</tbody>
</table>

Order Information —— Vibratory Disc Mill

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Weight(Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>on wheels (please order grinding set separately)</td>
<td></td>
</tr>
</tbody>
</table>

VM1 grinding set

24.876.0001 300.00 VM1, 380V, 50Hz
02.876.0101 6.00 hardened steel, 500 ml
02.876.0102 8.00 hardened steel, 800 ml
02.876.0103 14.00 hardened steel, 1000 ml
02.876.0104 20.00 hardened steel, 2000 ml
02.876.0105 6.00 grinding set: high manganese steel, 500 ml
02.876.0106 8.00 grinding set: high manganese steel, 800 ml
02.876.0107 14.00 grinding set: high manganese steel, 1000 ml
02.876.0108 20.00 grinding set: high manganese steel, 2000 ml
02.876.0109 15.00 tungsten carbide 400 ml

for grinding without heavy-metal contamination

02.876.0110 6.00 steel 1.1740 500 ml
02.876.0111 8.00 steel 1.1740 800 ml
02.876.0112 14.00 steel 1.1740 1000 ml
02.876.0113 12.00 steel 1.1740 2000 ml

VM3 grinding set

24.880.0001 210.00 VM3, 220V/50Hz
02.880.0116 6.00 hardened steel, 50ml
02.880.0101 9.40 hardened steel, 100ml
02.880.0102 9.00 hardened steel, 250 ml
02.880.0113 4.40 agate 50ml (only for 700rpm)
02.880.0107 6.00 agate 100ml (only for 700rpm)
02.880.0105 6.00 zirconium oxide 50ml
02.880.0106 9.50 zirconium oxide 100ml
02.880.0114 7.30 tungsten carbide 50ml (only for 1200rpm)
02.880.0103 10.00 tungsten carbide 100ml (only for 1200rpm)

for grinding without heavy-metal contamination

02.880.0116 5.20 steel 1.1740 100ml
02.880.0109 8.70 steel 1.1740 250ml
02.880.0115 6.00 steel 1.1740 50ml

The above is only partial information of items, for more details please contact Grinder Company.
Vibratory Disc Mill DP100

DP100 is firm and durable, applicable to pre-grinding and fine grinding for medium hard, hard and brittle solid materials. It can grind samples into 100μm particles very quickly.

You can use a frame to combine the disc mill DP100 and jaw crusher JC5 to realize one-step milling from 90mm-100μm, which can greatly improve the efficiency.

Working Principle

The samples are ground via the pressure and frictional force generated between a rotating disc and another fixed disc. After the sample enters into grinding chamber, the progressively arranged teeth of the grinding disc first subject the sample to preliminary crushing, centrifugal force then moves it to the outer regions of the grinding discs where fine grinding takes place. The ground sample falls into the sample receiver via the gap of the grinding discs.

Applications

Concrete, building debris, granite, basalt, silicate, gypsum, dry soil samples, depositional sludge, quartz, coal, coke, lime mud, refractory clay, glass and ceramics for dentistry and so on.

Features and advantages

- Simple operation, easy cleaning
- The sample feed size up to 20mm
- Efficient sample treatment, extreme size reduction can be reached in a short period
- Dust discharge connector design can prevent sample powders from polluting environment
- Grinding discs made of various materials are available for selection and wear-resistant.
- The gap of grinding discs can be adjusted continuously
- Large processing capacity of samples

Disc gap adjustment can be digital displayed

Information on material of grinding discs

<table>
<thead>
<tr>
<th>Material</th>
<th>Main components</th>
<th>Wear-resisting property</th>
<th>Sample characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardened steel</td>
<td>Cr,Fe</td>
<td>good</td>
<td>Hard, brittle</td>
</tr>
<tr>
<td>Manganese steel</td>
<td>Mn,Fe</td>
<td>good</td>
<td>Extremely hard, brittle</td>
</tr>
<tr>
<td>Tungsten carbide</td>
<td>WC96%,Co4%</td>
<td>Extremely good</td>
<td>Extremely hard, easy to wear</td>
</tr>
<tr>
<td>Zirconium oxide</td>
<td>ZrO299%</td>
<td>good</td>
<td>Medium-hard, brittle, heavy-metal-free</td>
</tr>
<tr>
<td>Heavy-metal free steel</td>
<td>Cr,Fe</td>
<td>good</td>
<td>Hard, brittle</td>
</tr>
</tbody>
</table>

The grinding discs of DP100 include two discs: one is fixed and the other can rotate. Two grinding discs shall be made of the same material and their hardness must be higher than the grinded samples. In addition, the cross contamination between the disc material and the elements to be tested shall be considered.

Order Information —— Vibratory Disc Mill DP100

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Weight(Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>02.870.001</td>
<td>8.50</td>
</tr>
<tr>
<td>02.870.002</td>
<td>9.50</td>
</tr>
<tr>
<td>02.870.003</td>
<td>19.00</td>
</tr>
<tr>
<td>02.870.004</td>
<td>7.50</td>
</tr>
</tbody>
</table>

Vibratory Disc Mill DP100

Technical Data

- Feed size: < 20mm
- Final fineness: < 100μm
- Speed: 470rpm/min
- The gap setting: 0.1~5mm
- Digital precision: 0.01mm
- Rated power: 1.5KW
- Power supply: 380V, 50Hz
- Instrument size (W*D*H): 260*935*390mm
- Package size (W*D*H): 600*1160*625mm
- Net weight: 180Kg