

Vibratory Disc Mill VM3		
Item No.	Weight(KG)	Article
<b>on wheels (please order grinding set separately)</b>		
24.880.0001	210.00	VM3: 220-230V, 50/60 Hz:
02.880.0101	9.40	hardened steel 100 ml
02.879.0102	8.90	hardened steel 250 ml
02.879.0107	6.00	agate 100ml
02.879.0105	6.00	Zirconium oxide 100ml
02.879.0106	9.50	Zirconium oxide 250ml
02.879.0103	10.00	Tungsten carbide 100ml
02.879.0104	14.60	Tungsten carbide 250ml
02.879.0108	5.20	steel 1.1740 100ml
02.879.0109	8.70	steel 1.1740 250ml
Accessories VM3		
03.880.0103	0.60	carry handle for grinding set 100ml
03.880.0104	0.60	carry handle for grinding set 250ml
03.880.0105	0.01	O-ring for grinding set 100ml
03.880.0106	0.01	O-ring for grinding set 250ml

The catalog is only for reference , Grinder reserve all the right for the final explanation.



**Geological and mineral**  
 ——for more perfect  
 sample preparation  
 solution



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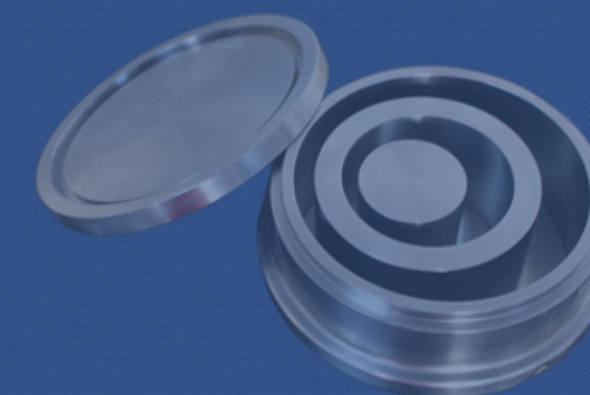
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Your local contact



# geological and mineral one-stop

Provide Variety solution, help to realize more scientific and accurately sample preparation requirement

## Application example

Application	Model	Jaw plate	Jaw gap	Feed size	Batch quantity	Grinding time	Final fineness
glass	JC6	Zirconium oxide	0.2mm	30mm	250g	2min	0.5mm
shale	JC5	stainless steel	2mm	50mmX200mm	1650g	6min	2mm
polycrystalline silicon	JC5	tungsten carbide	4mm	90mm	3000g	2min	2mm
iron ore	JC5	manganese steel	4mm	90mm	2000g	5min	2mm
soil	JC6	Zirconium oxide	1.5mm	30mm	280g	2min	0.5mm
Application	Model	Grinding set	Feed size	Batch quantity	Grinding time	speed	Final fineness
catalyst	VM1	2000ml hardened steel	20mm	1.6kg	10min	fix	100um
electronic scrap	VM3	100ml hardened steel	10mm	70g	6min	1400rpm	100um
Chromium iron molybdenum	VM3	100ml Tungsten carbide	0.5mm	175g	5min	1500rpm	75um
Fireproofing material	VM3	100ml Tungsten carbide	15mm	100g	5min	1400rpm	60um
iron ore	VM1	2000ml hardened steel	20mm	1.5kg	12min	fix	75um
granite	DP100	manganese steel	15mm	300g	1min	fix	300um
ferroalloy	DP100	manganese steel	10mm	200g	2min	fix	0.5mm

## Free sample testing

Grinder company provide the best profession, perfect sample preparation scheme and technical support for different sample from the customer.

Application laboratory can process your sample free and recommend the most suitable instrument for you .



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www.grindertech.cn

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JC6



DP100



JC5



VM3

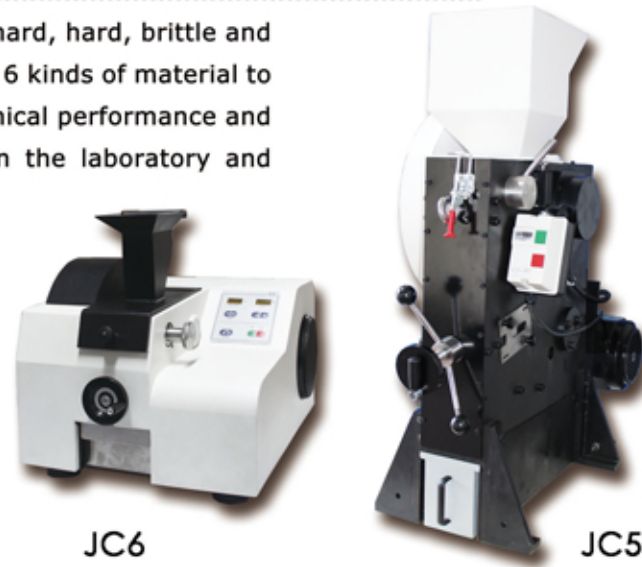


VM1

## Table Jaw crusher JC6

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

- High throughput, high degree of size reduction
- Excellent performance and high final fineness (d90 <0.5 mm)
- Zero point adjustment to compensate the wear
- Breaking jaws made of 6 different materials
- Anti-splash design hopper
- Easy-to-clean crushing chamber



JC6

JC5

### Work 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 continuously rotates with the motor and it is driven by a bent axle to perform oval movement. The sample is crushed due to extrusion caused by constant movements of the jaw plate and such sample 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.



### JC6 Technical highlight

The jaw crusher JC6 is a kind of sample prepare equipment specifically designed for laboratories. It has features such as compact design, easy operation and long service life. It applies to the rapid preliminary crushing of samples with intermediate rigidity, hardness and fragility and so on. It can perform crushing for small quantities of samples, and the size of the discharge is as small as 0.5mm. The jaw plate crushing gap of the device can be adjusted via zero point adjustment so as to reach the optimum grinding effect.



The feed hopper can be removed directly



Turn the handle to set the gap



Easily take out the jaw plate



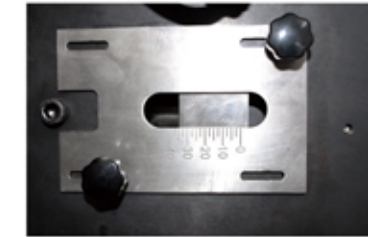
It is easy to clean the sample collecting tank

## Jaw crusher JC5

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

### 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 JC5 can eliminate the effects caused by wear through the zero point adjustment so that can guarantee the reliability of grinding results.



### High-safety design

The jaw crusher JC5 has high-level safety performance. The feed hopper can avoid scratching of operators touching the grinding chamber, in addition, the hopper baffle can prevent the rebound of samples from injuring persons. Furthermore, a safety switch is equipped at the upper of the feed hopper. The device cannot be started when the hopper is opened so as to guarantee the safety of operators. The motor and the controller also have overload protection devices; motor overload will occur when the load is too large (excessive sample loading or oversized samples), at this moment, such overload protection devices will automatically shut off the power supply for the device to protect the motor and the device.



### Comfortable operation and easy cleaning

The feed hopper of JC5 can easily 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 to make operators easily collect sample results. In addition, the grinding made by JC5 crushers is gentle with stable and quiet operation as well as low noises.



### 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 such devices by connecting industrial dust collectors with such dust discharge connectors.



### Product application

- Mining and metallurgical industry  
niobium-titanium alloy, ferrovanadium alloy, Luo vanadium, tungsten carbide, mineral, coal, slag, coke
- Chemical product  
The full range of chemical industry wide variety of raw materials
- Geology and mineralogy  
Rock, granite, basalt, barite, silicate

- Glass industry  
Glass ,raw material
- ceramic industry  
Talc, sintered clay,sintered ceramic,electroceramics
- construction material  
Bauxite,grog,quartz,cement

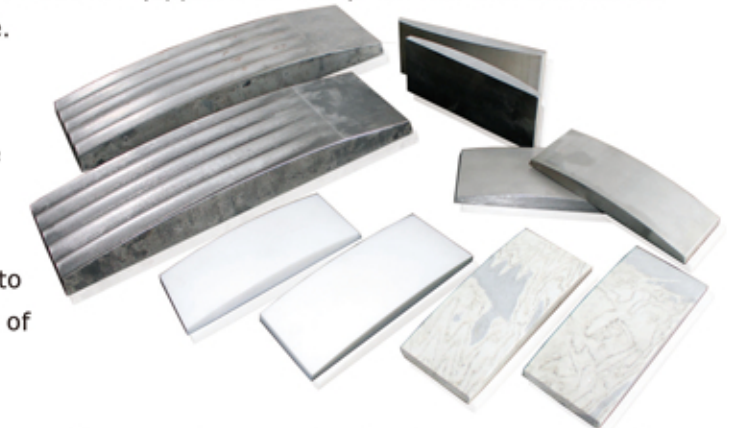
### Sample comparison before and after grinding

Sample picture		parameter	
Before grinding	After grinding	Sample	<b>limestone</b>
		Instrument	JC5 host with jaw plate of manganese steel
		Gap setting	2mm
		Sample characteristic	hard
		Attention time	The feed size less than 90mm real time
Sample picture		parameter	
Before grinding	After grinding	Sample	<b>ferrochrome</b>
		Instrument	JC5 host with jaw plate of tungsten carbide
		Gap setting	2mm
		Sample characteristic	hard
		Attention time	The feed size less than 90mm real time
Sample picture		parameter	
Before grinding	After grinding	Sample	<b>marble</b>
		Instrument	JC6 host with jaw plate of tungsten carbide
		Gap setting	0.5mm
		Sample characteristic	hard
		Attention time	The feed size less than 40mm real time
Sample picture		parameter	
Before grinding	After grinding	Sample	<b>coal</b>
		Instrument	JC6 host with jaw plate of manganese steel
		Gap setting	0.5mm
		Sample characteristic	Soft, powder
		Attention time	The feed size less than 40mm real time

### Option jaw plate material

For various application,we can supply different material of jaw plate. Please choose the suitable material depend your requirement

- Manganese steel  
This material character Subjected to impulsive pressure,, a part of the structure could be modified. Thus manganese steel can obtain a hardness of 600 HV (approx. 55 HRC). So this material can be used to process middle -hard and hard sample.
- Stainless steel  
The term "stainless steel" refers to corrosion-resistant steel. If process the middle hard sample ,you can choose this material.
- Tungsten carbide  
The material is the most wear-resistant. Even to the Moh's hardness 7-8 sample , the jaw plate of Tungsten carbide can used very long time.
- Zirconium oxide  
It is free of heavy metals and can therefore be used for sample preparation to heavy metal analysis, for example , Further areas of application are biology, the preparation of plant and animal tissue, as well as human medicine, where any kind of contamination can be hazardous.
- Steel for grinding without heavy metal contamination  
These steels are chromium- and nickel-free and can be used for sample preparation for analysis of heavy metals, provided that possible contamination with iron is acceptable.
- industry plastic  
This material has the characteristics of great toughness, drug -resistance, suitable for processing middle hard and brittle samples. This material jaw plate will not cause metal contamination to sample processing, can guarantee the high purity of the sample.



### Technical data

	JC5	JC6
transport data		
Package size	1165×800×1310mm	800×900×800mm
Instrument size	900×416×1088mm	570×434×370mm
Gross weight	360kg	75kg
Net weight	330kg	83kg
Technical data		
Power supply	380V 3+PE 50/60Hz	220V 50/60Hz
Nominal rating	2.2KW	1.1KW
Performance data		
Work principle	impact	
Application	Medium-hard, hard, brittle, tough	
Feed size	80×90mm	30×40mm
Final fineness	approx.2mm	approx.500µm
Collector capacity	5L	3L
Jaw plate width	99mm	59.5mm
Gap setting	2~30mm	0.2~13mm
Zero point adjustment	Yes	yes

## Vibratory Disc Mill VM series

Vibratory Disc Mill VM series are the flagship products of Grinder. Such grinders are mainly used for sample preparation for spectral analysis. The device is especially suitable for fast fine grinding without loss, and samples with fineness for analyses can be prepared by using it. No matter the materials are medium hard, hard, brittle or fibrous the vibrating cup type grinder can perform sample preparation treatment in dry conditions (namely dry grinding). There are five kinds of kits for grinding: hardened steel, tungsten carbide, agate, zirconium oxide and high manganese steel, which can meet your extensive and wide applications.

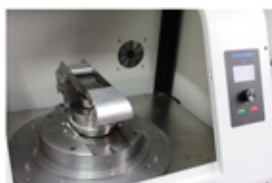


### Work principle

The VM series of Vibratory Disc Mill crush sample via pressure, impact and friction. The rapid compressing device makes the grinding kits firmly attached onto the vibrating chassis. Through transmission, the vibrating chassis will generate drastic 3D vibrating mode so as to make giant impacting force, frictional force and grinding force between the grinding kits, and such forces focus on samples to make them become powder in a very short time.

### VM3 advantage

- Extremely short grinding time
- Speed adjustable 700-1500rpm, continuous
- The final fineness ( $d_{95} < 40\mu\text{m}$ )
- Quick-action grinding set clamping device
- Two years warranty



Among the similar grinders, VM3 has the unique design of assisting mobile grinding cup, and the positioning is secured. The unique rapid fastening design facilitates safe operations.

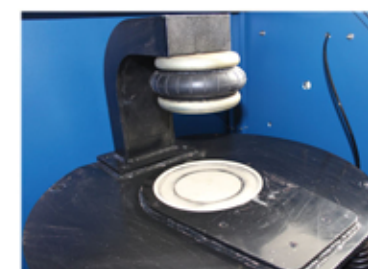
### Advantages of grinding kits

- ① There is positioning and assistance design at the bottom of grinding kits for easy fixing and remove.
- ② gap between dish and cover edge for easy opening
- ③ optimal sealing with O-ring design can protect sealing elements and prolong its service life.
- ④ All the grinding sets have protective jacket made from stainless steel to prolong the service life
- ⑤ All the grinding sets are printed with identification marks (volumes, materials).



VM3 control panel has a reasonable layout. The menu display is simple and smart. In addition, all programs have memory functions.

### VM1 Features



#### Convenient and safe operation

VM1 vibrating cup type grinders have high level security. The pneumatic fastening device on the device can rapidly fix grinding kits on a grinding platform, which makes operation convenient and simple; on the other hand, the pneumatized 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 similar products. According to test results, 95% of samples can be grinded below 75 micrometers within 3 minutes. In addition, the high-volume grinding kit of a VM1 grinder (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 number of samples.

#### Floor design to save space

The VM1 use compact floor type design. Such user-friendly design greatly saves your space to facilitate your layout.

#### Auxiliary assistance device

The device has the latest unique design; it is convenient to move the grinder and used for carrying heavy grinding cups. The device can greatly save the effort of experimenters so as to guarantee efficient and smooth grinding tests. This is one of technical highlights for the equipment as well as embodiment of user-friendly design.

### VM1 Advantages

- Compact floor type design saves space
- Small final fineness size ( $d_{95} < 75\mu\text{m}$ )
- Safe and rapid pneumatic fastening device
- Grinding kits made of five different kinds of materials are available for choices
- Grinding cups of five kinds of volumes can be equipped; one to three samples can be processed for each batch
- Large sample processing capacity, 1.8KG per time
- The design of safety protection lock can guarantee safe operation
- Unique Auxiliary assistance device facilitates the movement of grinding cups
- Strong power motor 2.2 KW and the grinding efficiency is 30% higher than that of similar products

For various application, we can supply different material of grinding set. Please choose the suitable material depend your requirement

■ Hardened steel

The biggest characteristic of this material is resistant corrosion, rust prevention. For processing corrosive sample, the material grinding suite is a good choice.

■ Tungsten carbide

This material have high-level hardness same with the diamond. Suitable for process high hardness sample. Now the volume we have 500ml and 800ml.

■ Agate

This material is heavy-metal free contamination, can guarantee the grinding purity. Suitable for process soil and some medium-hard sample. If you want a high grinding purity, you can choice this material.

■ zirconium oxide

It is free of heavy metals and can therefore be used for sample preparation to heavy metal analysis. for example, Further areas of application are biology, the preparation of plant and animal tissue, as well as human medicine, where any kind of contamination can be hazardous.

■ High manganese steel

This material is generally hardness, suitable for processing samples of popularization of non-corrosive, hardness is not high, due to its low cost, so the demand of this material grinding suite is bigger. If your purity of the sample request is not high, can consider the material grinding suite.

Five kinds of materials of grinding sets to choice, agate recognition for automatic speed reduction.

Unique clamping lock device, grinding chamber completely closed sound insulation design.



Loading chart	Sample quantity		
	Grinding sets (nominal volume)	Feeding quantity	Max feed size
	50ml	15-50ml	< 5mm
	100ml	35-100ml	< 10mm
	250ml	80-250ml	< 15mm
	500ml	160~400ml	20mm
	800ml	270~600ml	20mm
	1000ml	330~800ml	20mm
	2000ml	660~1500ml	25mm

Application

■ Ceramics and Glass

oxide ceramics, glass

■ building materials

ash cement, stone, concrete

■ environmental area

soil, Paving stone, slag,

■ Minerals & Metallurgy

Coal, coke, corundum, ore, slag



Sample comparison before and after grinding

Sample picture		parameter	
Before grinding	After grinding	Sample	coal
		Accessories material	manganese steel
		Manganese steel	soft
		Attention	Dry, the feed size less than 5mm
		time	5min
Sample picture		parameter	
Before grinding	After grinding	Sample	granite
		Accessories material	manganese steel
		Manganese steel	hard
		Attention	the feed size less than 5mm
		time	10min
Sample picture		parameter	
Before grinding	After grinding	Sample	brick
		Accessories material	manganese steel
		Manganese steel	brittle
		Attention	the feed size less than 5mm
		time	5min
Sample picture		parameter	
Before grinding	After grinding	Sample	glass
		Accessories material	manganese steel
		Manganese steel	brittle
		Attention	the feed size less than 5mm
		time	3min

Technical data

Technical data	VM1	VM3
Application	comminuting, mixing, tritulating	comminuting, mixing, tritulating
Feed material	medium-hard, hard, brittle, fibrous	medium-hard, hard, brittle, fibrous
Max Feed size	25mm	15mm
Final fineness	75µm	40µm
The number of the sample	1, 3	1
Batch quantity	20-1600g	20-250g
The volume of the grinding set	500 ml, 800 ml, 1000 ml, 2000 ml	50ml, 100ml, 250ml
Grinding set material	hardened steel, Tungsten carbide (only 500 ml and 800 ml), agate, Zirconium oxide, high manganese steel	hardened steel, Tungsten carbide (50ml, 100ml, 250ml), agate (speed 700rpm), Zirconium oxide
Speed	910 rpm	700~1500rpm, continuous
Drive motor	3-phase	3-phase
Nominal motor performance	2.2kw	1.5kw
Grinding time	Digital display	Digital display

## Disc Mill DP100

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



### Work principle

The samples is grinded 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 grinded sample falls into the sample receiver via the gap of the grinding discs.

### 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
- Long service life of grinding discs
- Grinding discs made of various materials are available for selection
- The gap of grinding discs can be adjusted continuously
- Large processing capacity of samples



Digital display adjustment of disc gaps and high repeatability

### Application fields

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

## Disc Mill

The grinding discs of a set 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.

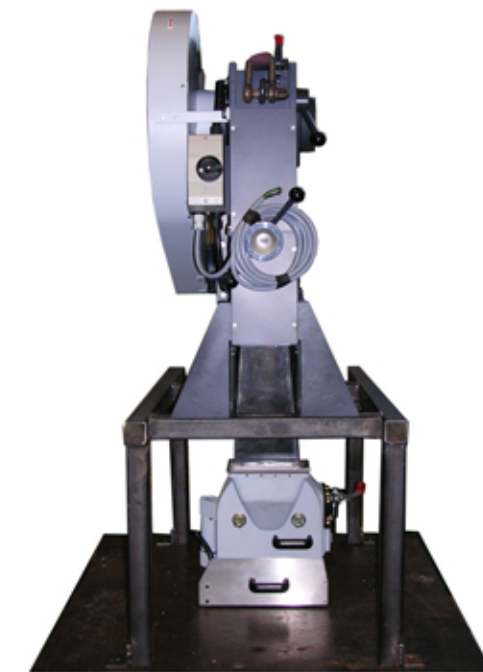


Material composition guidelines			
Material	Main components	wear-resisting property	sample characteristic
Hardened steel	Cr—Fe	good	Hard, brittle
Manganese steel	Mn—Fe	good	Extremely hard, brittle
Tungsten carbide	WC96%、Co4%	Extremely good	Extremely hard
Zirconium oxide	ZrO <sub>2</sub> 99%	good	Medium-hard、brittle、heavy-metal -free
Heavy-metal free steel	Cr—Fe	good	hard、brittle



### Technical Data

Technical Data	
Instrument size	260*935*390mm
Net weight	180kg
Max feed size	< 20mm
Final fineness	< 100 $\mu$ m
The gap setting	0.1~5mm
Digital precision	0.01mm
Power supply	3PH, ~380V, 50/60Hz
Nominal rating	1.5kw
Speed	470rpm



You can use a frame to combine the disc mill DP100 /jaw crusher JC5 to realize the one-step milling from 90mm-100 $\mu$ m. That can improve the efficiency.

Jaw Crusher JC5					
Item No.	Weight(KG)	Article			
		jaw plate		the side liner	
24.871.0001	350.00	JC5 host: 3/N~ 400 V, 50 Hz	manganese steel	stainless steel	
24.871.0002	350.00	JC5 host: 3/N~ 400 V, 50 Hz	stainless steel	stainless steel	
24.871.0003	390.00	JC5 host: 3/N~ 400 V, 50 Hz	Tungsten carbide	stainless steel	
24.871.0004	420.00	JC5 host: 3/N~ 400 V, 50 Hz	Tungsten carbide	Tungsten carbide	
24.871.0005	380.00	JC5 host: 3/N~ 400 V, 50 Hz	Zirconium oxide	Zirconium oxide	
for grinding without heavy-metal contamination					
24.871.0006	350.00	JC5 host: 3/N~ 400 V, 50 Hz	steel 1.1750	steel st1203	
Accessories JC5					
01.871.0001	6.20	Jaw plate	manganese steel	1pair	
01.871.0002	6.20	Jaw plate	stainless steel	1pair	
01.871.0003	40.00	Jaw plate	tungsten carbide	1pair	
01.871.0010	12.00	Jaw plate	Zirconium oxide	1pair	
01.871.0004	6.20	side liner	stainless steel	1pair	
01.871.0005	40.00	side liner	tungsten carbide	1pair	
Accessories JC5 for grinding without heavy-metal contamination					
01.871.0008	4.00	Jaw plate	steel 1.1750	1pair	
01.871.0009	2.00	side liner	steel st1203	1pair	
Jaw Crusher JC6					
Item No.	Weight(KG)	Article			
		jaw plate		the side liner	
24.874.0001	92.00	JC6 host: 230 V, 50 Hz	manganese steel	stainless steel	
24.874.0002	92.00	JC6 host: 230 V, 50 Hz	stainless steel	stainless steel	
24.874.0003	94.00	JC6 host: 230 V, 50 Hz	Tungsten carbide	Tungsten carbide	
24.874.0004	92.00	JC6 host: 230 V, 50 Hz	Zirconium oxide	Zirconium oxide	
for grinding without heavy-metal contamination					
24.874.0005	92.00	JC6 230 V ,50Hz	steel 1.1750	steel st1203	
Accessories JC6					
01.874.0001	1.50	Jaw plate	manganese steel	1pair	
01.874.0002	1.50	Jaw plate	stainless steel	1pair	
01.874.0003	3.00	Jaw plate	tungsten carbide	1pair	
01.874.0004	1.40	Jaw plate	Zirconium oxide	1pair	
01.874.0005	2.00	side liner	stainless steel	1pair	
01.874.0006	3.20	side liner	tungsten carbide	1pair	
01.874.0007	1.40	side liner	Zirconium oxide	1pair	
Accessories JC6 for grinding without heavy-metal contamination					
01.874.0009	4.00	Jaw plate	steel 1.1750	1pair	
01.874.0010	2.00	side liner	steel st1203	1pair	

Vibratory Disc Mill VM1			
Item No.	Weight(KG)	Article	
		on wheels (please order grinding set separately)	
24.876.0001	300.00	VM1: 220-230V, 50/60 Hz:	
02.876.0102	6.00	hardened steel 500 ml	
02.876.0103	8.00	hardened steel 800 ml	
02.876.0104	9.00	hardened steel 1000 ml	
02.876.0105	12.00	hardened steel 2000 ml	
02.876.0106	6.00	manganese steel 500ml	
02.876.0107	8.00	manganese steel 800ml	
02.876.0108	9.00	manganese steel 1000ml	
02.876.0109	12.00	manganese steel 2000ml	
02.876.0110	15.00	Tungsten carbide 400ml	
for grinding without heavy-metal contamination			
02.867.0113	6.00	steel 1.1740	500ml
02.867.0114	8.00	steel 1.1740	800ml
02.867.0115	9.00	steel 1.1740	1000ml
02.867.0116	12.00	steel 1.1740	2000ml
Accessories VM1			
03.876.0103	0.60	O-ring for grinding set 500ml	
03.876.0104	0.60	O-ring for grinding set 1000ml	
03.876.0105	0.01	O-ring for grinding set 2000ml	
03.876.0106	0.01	O-ring for grinding set 800ml	
Vibratory Disc Mill DP100			
Item No.	weight(kg)	Article	
		DP100 (please order grinding discs separately)	
24.870.0001	150.00	DP100 Host 3/N 400v 50Hz	
Grinding DISC			
02.870.0001	8.50	Gring Disc ,manganese steel ,1pair	
02.870.0002	10.00	Gring Disc ,hardened steel ,1pair	
02.870.0003	20.00	Gring Disc ,tungsten carbide ,1pair	
02.870.0004	7.10	Gring Disc ,zirconium ,1pair	