

## Ultra Centrifugal Mill ZM 200

### General Information

The Ultra Centrifugal Mill ZM 200 is a high speed rotor mill with unmatched performance. It is used for the rapid size reduction of soft to medium-hard and fibrous materials.

Because of the efficient size reduction technique the ZM 200 ensures the gentle preparation of analytical samples in a very short time. The comprehensive range of accessories including a large variety of ring sieves and rotors as well as collection systems makes the Ultra Centrifugal Mill a versatile instrument that can be easily adapted to varying applications. The optional Vibratory Feeder is load-controlled via an interface and ensures a uniform grind at maximum output rate. When using a cyclone, the sample material is additionally cooled by the air stream and more rapidly discharged from the grinding chamber via the cassette pan with outlet. This effect can be increased by connecting a vacuum cleaner. With thousands of installations, the ZM 200 has become a standard for food and feeds, for the chemical industry as well as for agricultural testing.



### Application Examples

activated charcoal, animal tissue, bentonite, bones, cereals, chemical products, coal, coffee beans, coke, collagen, corn, dried fruit and vegetables, dried larvae, drugs, electronic components, feed pellets, fertilizers, food, limestone, minerals, paper, pharmaceutical materials, plant materials, plastics, powder coatings, refuse derived fuels, rice, rubber granulate, seeds, spices, straw, ...



### Product Advantages

- Powerdrive with optimally matched frequency converter and 3-phase motor
- comfortable parameter setting via display and ergonomic 1-button operation
- wide range of accessories including various collection and feeding systems, rotors and sieves
- gentle and very rapid size reduction by pre- and fine grinding in one run
- wide speed range
- maximum peripheral rotor speed 92.8 m/s
- patented cassette system for maximum sample recovery and easy cleaning
- easily exchangeable grinding and sieve inserts
- defined final fineness due to ring sieves with aperture sizes from 0.08 - 10 mm
- comfortable safety housing with automatic cover closure
- motor compartment and electronics protected against dust and material penetration



### Features

Applications	fine grinding
Field of application	agriculture, biology, chemistry / plastics, construction materials,

## Ultra Centrifugal Mill ZM 200

	engineering / electronics, environment / recycling, food, geology / metallurgy, medicine / pharmaceuticals
Feed material	soft, medium-hard, brittle, fibrous
Size reduction principle	impact, shearing
Material feed size*	< 10 mm
Final fineness*	< 40 µm
Batch size / feed quantity*	300 ml with standard cassette 20 ml with mini-cassette 1000 ml with paper filter bag 4500 ml / 2500 ml / 450 ml / 230 ml with cyclone
Speed at 50 Hz (60 Hz)	6,000 - 18,000 min <sup>-1</sup> , free selectable
Rotor peripheral speed	31 - 93 m/s
Rotor diameter	99 mm
Types of rotors	6-tooth rotor / 12-tooth rotor / 24-tooth rotor / 8-tooth mini-rotor
Material of grinding tools	stainless steel, titanium, steel 1.4404, stainless steel with wear-resistant coating
Sieve sizes	trapezoid holes 0.08 / 0.12 / 0.20 / 0.25 / 0.50 / 0.75 / 1.00 / 1.50 / 2.00 mm round holes 3.00 / 4.00 / 5.00 / 6.00 / 10.00 mm
Setting of grinding time	-
Collector capacity	900 ml with standard cassette 50 ml with mini-cassette 3000 ml with paper filter bag 5000 ml / 3000 ml / 500 ml / 250 ml with cyclone
Drive	3-phase asynchronous motor with frequency converter
Electrical supply data	different voltages
Power connection	1-phase
Protection code	IP 20
Power consumption	1300 W
W x H x D closed	410 x 515 x 365 mm
Net weight	~ 38 kg
Documentation	Operation & Application Video
Standards	CE
*depending on feed material and instrument configuration/settings	

## Ultra Centrifugal Mill ZM 200

### Videolink



<http://www.retsch.com/zm200>

### Function Principle

In the Ultra Centrifugal Mill ZM 200 size reduction takes place by impact and shearing effects between the rotor and the fixed ring sieve. The feed material passes through the hopper (with splash-back protection) onto the rotor. Centrifugal acceleration throws it outward with great energy and it is precrushed on impact with the wedge-shaped rotor teeth moving at a high speed. It is then finely ground between the rotor and the ring sieve.

This 2-step grinding ensures particularly gentle but fast processing. The feed material only remains in the grinding chamber for a very short time, which means that the characteristic features of the sample to be determined are not altered. The ground sample is collected in the collecting cassette surrounding the grinding chamber or in the downstream cyclone or paper filter bag.

### Order data

#### Ultra Centrifugal Mill ZM 200

**with 900 ml cassette (please order push-fit rotor and ring sieve separately)**

20.823.0001

ZM 200, 230 V, 50/60 Hz

**other electrical versions available for the same price**

#### Accessories ZM 200

##### Push-fit rotors of stainless steel

02.608.0040

Push-fit rotor, 6 teeth

02.608.0041

Push-fit rotor, 12 teeth

02.608.0042

Push-fit rotor, 24 teeth

##### Ring sieves of stainless steel

03.647.0231

Trapezoid holes, 0.08 mm

03.647.0232

Trapezoid holes, 0.12 mm

03.647.0233

Trapezoid holes, 0.20 mm

## Ultra Centrifugal Mill ZM 200

03.647.0234	Trapezoid holes, 0.25 mm
03.647.0235	Trapezoid holes, 0.50 mm
03.647.0236	Trapezoid holes, 0.75 mm
03.647.0237	Trapezoid holes, 1.00 mm
03.647.0238	Trapezoid holes, 1.50 mm
03.647.0239	Trapezoid holes, 2.00 mm
03.647.0240	Round holes, 3.00 mm
03.647.0241	Round holes, 4.00 mm
03.647.0242	Round holes, 5.00 mm
03.647.0243	Round holes, 6.00 mm

### Ring sieves of stainless steel, with reinforced rim, recommended for heavy-duty usage

03.647.0244	Trapezoid holes, 0.08 mm
03.647.0245	Trapezoid holes, 0.12 mm
03.647.0246	Trapezoid holes, 0.20 mm
03.647.0247	Trapezoid holes, 0.25 mm
03.647.0248	Trapezoid holes, 0.50 mm
03.647.0249	Trapezoid holes, 0.75 mm
03.647.0250	Trapezoid holes, 1.00 mm
03.647.0251	Trapezoid holes, 1.50 mm
03.647.0252	Trapezoid holes, 2.00 mm
03.647.0272	Round holes, 3.00 mm
03.647.0273	Round holes, 4.00 mm
03.647.0274	Round holes, 5.00 mm
03.647.0275	Round holes, 6.00 mm

### Distance sieves of stainless steel, recommended for temperature-sensitive materials

03.647.0253	Trapezoid holes, 0.08 mm
03.647.0254	Trapezoid holes, 0.12 mm
03.647.0255	Trapezoid holes, 0.20 mm
03.647.0256	Trapezoid holes, 0.25 mm
03.647.0257	Trapezoid holes, 0.50 mm
03.647.0258	Trapezoid holes, 0.75 mm
03.647.0259	Trapezoid holes, 1.00 mm
03.647.0260	Trapezoid holes, 1.50 mm
03.647.0304	Trapezoid holes, 2.00 mm
03.647.0261	Round holes, 4.00 mm
03.647.0298	Square holes, 10.00 mm, for pre-grinding

### Accessories ZM 200 for abrasive products

#### Push-fit rotors of stainless steel, with wear resistant coating

## Ultra Centrifugal Mill ZM 200

02.608.0043	Push-fit rotor, 6 teeth
02.608.0044	Push-fit rotor, 12 teeth
02.608.0045	Push-fit rotor, 24 teeth

### Ring sieves of stainless steel, with reinforced rim, with wear resistant coating

03.647.0262	Trapezoid holes, 0.20 mm
03.647.0263	Trapezoid holes, 0.25 mm
03.647.0264	Trapezoid holes, 0.50 mm
03.647.0265	Trapezoid holes, 0.75 mm
03.647.0266	Trapezoid holes, 1.00 mm
03.647.0267	Trapezoid holes, 1.50 mm
03.647.0268	Trapezoid holes, 2.00 mm
03.647.0269	Round holes, 3.00 mm

### Accessories ZM 200 for grinding without heavy-metal contamination

#### Rotor and cassette

02.608.0047	Push-fit rotor, 12 teeth of pure titanium
22.355.0006	Cassette 900 ml with coating of titanium-niob, complete (pan and lid with gasket)

#### Ring sieves of pure titanium, with reinforced rim

03.647.0270	Trapezoid holes, 0.08 mm
03.647.0271	Trapezoid holes, 0.12 mm
03.647.0276	Trapezoid holes, 0.20 mm
03.647.0277	Trapezoid holes, 0.25 mm
03.647.0278	Trapezoid holes, 0.50 mm
03.647.0279	Trapezoid holes, 0.75 mm
03.647.0280	Trapezoid holes, 1.00 mm
03.647.0281	Trapezoid holes, 1.50 mm
03.647.0282	Trapezoid holes, 2.00 mm
03.647.0283	Round holes, 4.00 mm

#### Cyclones ZM 200

##### incl. cassette pan with outlet and support

22.935.0014	Cyclone with filter bag, with sample bottles 0.25 and 0.5 litres
22.935.0015	Cyclone with filter bag, with collecting receptacle 3 litres
22.935.0016	Cyclone with filter bag, with collecting receptacle 5 litres

## Ultra Centrifugal Mill ZM 200

22.935.0017	Cyclone with connection for vacuum cleaner, with sample bottles 0.25 and 0.5 litres
22.935.0018	Cyclone with connection for vacuum cleaner, with collecting receptacle 3 litres
22.935.0019	Cyclone with connection for vacuum cleaner, with collecting receptacle 5 litres
22.748.0002	Industrial vacuum cleaner HDS 2000, 230 V, 50/60 Hz (other electrical versions available)
32.524.0005	Filter bags for industrial vacuum cleaner HDS 2000, 5 pieces
32.524.0006	HEPA filter for industrial vacuum cleaner HDS 2000, 1 piece

### Paper filter bags ZM 200

22.261.0003	Paper filter bags (12 pieces) incl. cassette pan with outlet and filter holder
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### Accessories ZM 200 for grinding small quantities

#### Rotor and cassette

22.786.0002	Conversion kit for grinding small quantities consisting of push-fit rotor with 8 teeth, labyrinth disc, cassette 50 ml
02.608.0057	Push-fit rotor, 8 teeth, corrosion-resistant steel 1.4404 (316), 70 mm Ø
02.706.0247	Labyrinth disc
02.010.0039	Cassette 50 ml for small quantities, complete (pan, lid, gasket), corrosion resistant steel 1.4404 (316)

#### Ring sieves of corrosion resistant steel 1.4404 (316), 70 mm Ø

03.647.0287	Trapezoid holes, 0.08 mm
03.647.0288	Trapezoid holes, 0.12 mm
03.647.0289	Trapezoid holes, 0.20 mm
03.647.0290	Trapezoid holes, 0.25 mm
03.647.0285	Trapezoid holes, 0.50 mm
03.647.0291	Trapezoid holes, 0.75 mm
03.647.0292	Trapezoid holes, 1.00 mm
03.647.0293	Trapezoid holes, 1.50 mm
03.647.0294	Trapezoid holes, 2.00 mm

### Vibratory Feeder DR 100 for automatic material feed

22.936.1001	DR 100, 220-240 V, 50 Hz, complete with feeding kit with 75/40 mm push-fit feed chute, length 250 mm,
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## Ultra Centrifugal Mill ZM 200

22.936.1002	hopper, stand and data cable DR 100, 110-120 V, 60 Hz, complete with feeding kit with 75/40 mm push-fit feed chute, length 250 mm, hopper, stand and data cable
<b>Additional items ZM 200</b>	
02.010.0037	Cassette complete, stainless steel, incl. pan 900 ml,, lid with gasket
22.355.0009	Cassette complete, stainless steel, incl. pan with outlet,, lid with gasket
22.355.0006	Cassette complete, titanium-niob coating, incl. pan 900 ml,, lid with gasket
03.010.0037	Cassette pan 900 ml, stainless steel
02.010.0046	Cassette pan with outlet, stainless steel
03.010.0041	Cassette pan 900 ml, titanium-niob coating
22.355.0003	Cassette lid, stainless steel, with gasket
22.355.0005	Cassette lid, titanium-niob coating, with gasket
03.111.0201	Gasket for cassette lid
22.936.0007	Set of gaskets for cassette lid, 5 pieces
02.011.0029	Collecting receptacle for cyclone, 5 litres, stainless steel
02.011.0031	Collecting receptacle for cyclone, 3 litres, stainless steel
02.186.0010	Filter bag of nylon, for cyclone
22.524.0001	Paper filter bags, 12 pieces
05.708.0065	Protective grating with dust filter for fan
22.524.0003	Dust filter for fan, 10 pieces
99.200.0005	IQ/OQ Documentation for ZM 200