**RETSCH Product Navigator**

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# Size reduction with rotor mills




Retsch®

Solutions in Milling & Sieving

# Ultra Centrifugal Mill ZM 200

The powerful drive of the innovative Ultra Centrifugal Mill ZM 200 ensures rapid grinding results. Together with its extremely efficient operation the ZM 200 can prepare 100 samples or more per day for analysis.
**More on page 4.**

## Ultra Centrifugal Mills



## Rotor Beater Mills



## Cross Beater Mills



The **rotor mill series** includes ultra centrifugal mills, rotor beater mills and cross beater mills. Depending on the particular instrument they are suitable for the preliminary and fine size reduction of soft, fibrous and also hard materials. A final fineness of down to 40 µm can often be achieved in the first working step. The maximum feed size depends on the mill and ranges from 10 to 15 mm. Material which is larger than this must first undergo preliminary size reduction.

**Preliminary size reduction**

**For the coarse and preliminary size reduction** of hard, brittle or hard-tough materials the RETSCH jaw crushers have proven themselves in practice. In contrast, bulky, soft, fibrous or tough materials are best processed in RETSCH cutting mills.

**Sample dividers**

Sample dividers, rotary tube sample dividers, sample splitters – with RETSCH sample dividers you can obtain representative part samples from pourable powders and bulk goods.

# Ultra Centrifugal Mill ZM 200


## High-speed power for excellent grinding results

With the Ultra Centrifugal Mill ZM 200 RETSCH now offers a mill with previously unmatched performance. The new "Powerdrive" ensures higher performance with increased torque. The machine even reacts to temporary overloads with a continued throughput which ensures particularly efficient grinding.

The extremely quick size reduction increases sample throughput in the laboratory and, in combination with the 2-step rotor-ring sieve system, is also extremely gentle on the material.

Soft, elastic products such as plastics, which do not process well at room temperature, can be fed into the mill after embrittlement with liquid nitrogen or dry ice.

## Benefits at a glance

- Versatile in use due to wide range of accessories
- High final fineness
- Wide speed range, adjustable from 6 000 to 18 000 $min^{-1}$
- Considerably increased throughput due to optimally matched frequency converter and 3-phase motor
- Safety housing with automatic cover closure
- Motor compartment and electronics protected against dust and material penetration
- Safe design to CE standard
- 2-year warranty

## Versatile and efficient

The RETSCH Ultra Centrifugal Mill ZM 200 is used for the rapid fine size reduction of soft to medium-hard and fibrous materials. Because of the efficient size reduction technique and the comprehensive range of accessories **the ZM 200 ensures the gentle preparation of analytical samples in a very short time.**

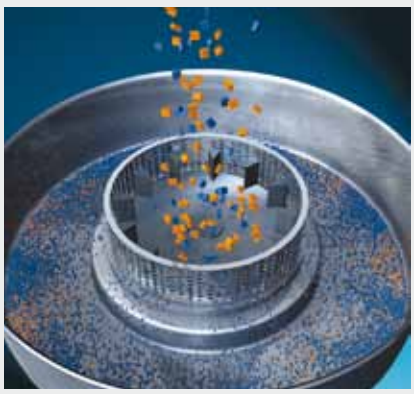
The suitability of the ZM 200 for **universal use** is shown by the following examples:

- **chemicals, drugs, spices, coal, synthetic resins, plastics, pharmaceutical raw materials and finished products, fertilizers**
- **nitrogen and protein determination in food and feedstuffs**
- **environmental studies into plant constituents**
- **preparation of bones**
- **fossil fuels and secondary fuels**
- **sample batch production of customized powder coatings**
- **surfactant determination in washing powders**

The ultra centrifugal mill is used in both quality control and R&D.

## ZM 200 technology

In the ultra centrifugal mill 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 pre-crushed 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.



Controlled and uniform material feed:
ZM 200 with Vibratory Feeder DR 100

Automatic size reduction of large amounts:
ZM 200 with Vibratory Feeder DR 100 and cyclone

## Suitable for almost any task

Its wide range of accessories and the possibility to individually select the rotor speed make the ZM 200 easily adaptable to any size reduction task.

The feed material is introduced either manually or via an optional load-controlled Vibratory Feeder DR 100. This automatic sample feed ensures **particularly uniform grinding results**. The ground sample is collected in the cassette. The innovative cassette principle ensures easy and loss-free material removal and avoids cross-contamination.

For **grinding larger amounts** we recommend the use of a paper filter bag or a cyclone with a 3 l or 5 l collecting receptacle. If a cyclone or paper filter bag is used then the sample will be cooled by the air stream and discharged more rapidly from the grinding chamber via the passage receptacle.

All parts coming into contact with the sample can be removed, cleaned and reassembled without using any tools.

| Performance data | | ZM 200 |
|---|---|---|
| Application | | fine grinding |
| Field of application | | agronomy, chemistry, biology, medicine, pharmaceuticals, plastics, foods, environment, construction materials |
| Feed material | | soft, medium-hard, brittle, fibrous |
| Feed size | | up to 10 mm |
| Final fineness* | | <40 µm |
| Sample volume (nominal) | with standard cassette | up to 300 ml (900 ml) |
| | with mini-cassette | up to 20 ml (50 ml) |
| | with paper filter bag | up to 1000 ml (3000 ml) |
| | with cyclone | up to 2500 ml (3000 ml), or up to 4500 ml (5000 ml) |
| Speed range | | 6000 - 18000 $min^{-1}$, freely selectable |
| Rotor peripheral speed | | 30.9 - 92.8 m/s |
| *depending on feed material and instrument configuration/settings | | |

| Technical data | |
|---|---|
| Power consumption | approx. 1300 W (VA) |
| W x H x D | 410 x 515 x 365 mm |
| Weight, net | approx. 38 kg |

| Noise values (noise measurement according to DIN 45635-31-01-KL3) | |
|---|---|
| Emission value with regard to workplace | $L_{pAeq}$ 77.5 dB(A) |
| Measuring conditions: | |
| Sample | burnt lime |
| Feed size | < 5 mm |
| Rotor used | 12-tooth rotor |
| Ring sieve used | 0.5 mm trapezoid holes |

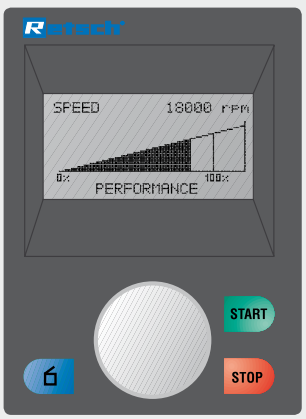
## New technology with maximum operating comfort

The ZM 200 is very simple and safe to use. The parameters are easily set via a graphics display and 1-button operation. All relevant data can be comfortably entered or called up, e.g.

- speed
- drive load factor
- operating hours
- service intervals
- clear text error messages

The multi-language menu guidance system allows the adaptation of the display to the user's requirements. The electronic safety and diagnosis system **virtually rules out operating errors**.



# ZM 200 – powerful, safe, versatile

## Rotors and ring sieves

The selection of the push-fit rotors and ring sieves depends on the properties of the sample, the required final fineness and the subsequent analysis.

The selection of the ring sieve aperture size depends on the required final fineness and the feed material. With most materials approx. 80% of the total sample achieves a fineness of less than half the aperture size of the ring sieve used.


*(1) Standard ring sieve*
*(2) Ring sieve with reinforced rim*
*(3) Distance sieve*

Rotors and ring sieves are available in various materials and types. The reinforced rims provide the ring sieves with greater stability.

Temperature-sensitive, brittle materials such as powder coatings and resins are particularly easy to grind with the **distance sieves** that have been specially developed for this purpose.

Rotors and ring sieves with an abrasion-resistant coating are used for reducing the size of abrasive substances such as fertilizers.

For **heavy-metal-free size reduction** of non-abrasive materials we recommend the use of rotors and ring sieves made from titanium together with cassette bases and covers with a titanium-niobium coating.

**Thanks to the wide range of accessories with rotors, ring sieves and different types of collection systems, the ZM 200 can be easily adapted to suit a wide variety of applications.**

| Rotor selection guide | |
|---|---|
| Rotor | Field of application |
| 6-tooth rotor | coarse, bulky, fibrous goods such as feed pellets, hay and straw |
| 12-tooth rotor | medium-coarse goods such as wheat, oats, corn, tablets, powder coatings and plastics |
| 24-tooth rotor | fine goods such as chemicals, coal and sugar |
| 8-tooth mini-rotor | specially for size reduction of small sample amounts up to 20 ml |

## Accessories for grinding small volumes

In many fields, e.g. in the pharmaceutical industry, the required sample amounts are very small. Therefore the ZM 200 is now available with a mini-cassette for small sample volumes of up to 20 ml which is used in combination with the 8-tooth mini-rotor. The loss-free recovery of smaller amounts of sample is made easier by the reduced cassette diameter. Suitable ring sieves are available with aperture sizes from 0.08 to 2.00 mm. If the grinding tools for small volumes are used in the ZM 200 only a small labyrinth disc is required. The necessary accessories are available as a conversion kit.

All parts coming into contact with the sample, including the cassette and ring sieves, are made from corrosion-resistant steel 1.4404 (316).

## Order data for Ultra Centrifugal Mill ZM 200

| Ultra Centrifugal Mill ZM 200 | | Item No. |
|---|---|---|
| ZM 200 with cassette (900 ml) (please order push-fit rotor and ring sieve separately) | | |
| ZM 200 | for 230 V, 50/60 Hz | 20.823.0001 |
| ZM 200 | for 110 V, 50/60 Hz | 20.823.0002 |
| ZM 200 | for 120 V, 50/60 Hz | 20.823.0003 |

| Push-fit rotors and ring sieves for normal use | | | | | | | | | | | | | Item No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Push-fit rotor | | | | | | | | | 6-tooth | | 12-tooth | | 24-tooth |
| Push-fit rotor, stainless steel | | | | | | | | | 02.608.0040 | | 02.608.0041 | | 02.608.0042 |
| Ring sieves | Trapezoid holes | | | | | | | | | Round holes | | | |
| Aperture sizes in mm | 0.08 | 0.12 | 0.20 | 0.25 | 0.50 | 0.75 | 1.00 | 1.50 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 |
| Ring sieves, stainless steel | | | | | | | | | | | | | |
| Item No.: 03.647… | 0231 | 0232 | 0233 | 0234 | 0235 | 0236 | 0237 | 0238 | 0239 | 0240 | 0241 | 0242 | 0243 |
| Ring sieves, stainless steel, with reinforced rim, recommended for tough materials | | | | | | | | | | | | | |
| Item No.: 03.647… | 0244 | 0245 | 0246 | 0247 | 0248 | 0249 | 0250 | 0251 | 0252 | 0272 | 0273 | 0274 | 0275 |
| Distance sieves, stainless steel, recommended for temperature-sensitive materials | | | | | | | | | | | | | |
| Item No.: 03.647… | 0253 | 0254 | 0255 | 0256 | 0257 | 0258 | 0259 | 0260 | 0304 | – | 0261 | – | – |
| Distance sieves, stainless steel, square holes, 10 mm, for pre-grinding | | | | | | | | | | | | | 03.647.0298 |

| Push-fit rotors and ring sieves for abrasive products | | | | | | | | | | | | | Item No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Push-fit rotor | | | | | | | | | 6-tooth | | 12-tooth | | 24-tooth |
| Push-fit rotor, stainless steel, with wear-resistant coating | | | | | | | | | 02.608.0043 | | 02.608.0044 | | 02.608.0045 |
| Ring sieves | Trapezoid holes | | | | | | | | | Round holes | | | |
| Aperture sizes in mm | 0.08 | 0.12 | 0.20 | 0.25 | 0.50 | 0.75 | 1.00 | 1.50 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 |
| Ring sieves, stainless steel, with reinforced rim, wear-resistant coating | | | | | | | | | | | | | |
| Item No.: 03.647… | – | – | 0262 | 0263 | 0264 | 0265 | 0266 | 0267 | 0268 | 0269 | – | – | – |

| Push-fit rotors and ring sieves for heavy-metal-free grinding | | | | | | | | | | | | | Item No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Push-fit rotor | | | | | | | | | | | | | 12-tooth |
| Push-fit rotor, titanium | | | | | | | | | | | | | 02.608.0047 |
| Cassette, titanium-niobium coating, complete (base, cover and seal) | | | | | | | | | | | | | 22.355.0006 |
| Ring sieves | Trapezoid holes | | | | | | | | | Round holes | | | |
| Aperture sizes in mm | 0.08 | 0.12 | 0.20 | 0.25 | 0.50 | 0.75 | 1.00 | 1.50 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 |
| Ring sieves, titanium, with reinforced rim | | | | | | | | | | | | | |
| Item No.: 03.647… | 0270 | 0271 | 0276 | 0277 | 0278 | 0279 | 0280 | 0281 | 0282 | – | 0283 | – | – |

| Accessories for grinding small volumes | | | | | | | | | | | | | Item No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conversion set for grinding small volumes, consisting of 8-tooth push-fit rotor, labyrinth disc and cassette (50 ml) | | | | | | | | | | | | | 22.786.0002 |
| 8-tooth push-fit rotor, corrosion-resistant steel 1.4404 (316) | | | | | | | | | | | | | 02.608.0057 |
| Labyrinth disc | | | | | | | | | | | | | 02.706.0247 |
| Cassette (50 ml), corrosion-resistant steel 1.4404 (316), complete (base, cover and seal) | | | | | | | | | | | | | 02.010.0039 |
| Ring sieves | Trapezoid holes | | | | | | | | | Round holes | | | |
| Aperture sizes in mm | 0.08 | 0.12 | 0.20 | 0.25 | 0.50 | 0.75 | 1.00 | 1.50 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 |
| Ring sieves, corrosion-resistant steel 1.4404 (316) | | | | | | | | | | | | | |
| Item No.: 03.647… | 0287 | 0288 | 0289 | 0290 | 0285 | 0291 | 0292 | 0293 | 0294 | – | – | – | – |

| Accessories for grinding large volumes | Item No. |
|---|---|
| Cyclone for ZM 200 with passage receptacle and holder, with 5 liter collector | 22.935.0009 |
| Cyclone for ZM 200 with passage receptacle and holder, with 3 liter collector | 22.935.0010 |
| Paper filter bags (12 pieces) with passage receptacle and flange | 22.261.0003 |

| Accessories for automatic material feed | | Item No. |
|---|---|---|
| Feeder kit DR 100, complete with feed attachment and 40 mm push-fit feed chute, length 250 mm, hopper, stand and data cable | | |
| DR 100 | for 220-240 V, 50 Hz | 22.936.0001 |
| DR 100 | for 110-120 V, 60 Hz | 22.936.0002 |

| Other accessories / Spare parts | Item No. |
|---|---|
| Spare cassette (900 ml), stainless steel, complete (base, cover and seal) | 02.010.0037 |
| Spare cassette cover, stainless steel, with seal | 22.355.0003 |
| See price list for further accessories | |

# Rotor Beater Mills SR 200 and SR 300

## Size reduction, deagglomeration

RETSCH rotor beater mills are suitable for coarse and fine size reduction, either in batches or continuously, as well as for the deagglomeration of dry, soft and medium-hard organic and inorganic substances. The mills can be used for sample preparation in the laboratory or in pilot plants for large sample quantities.

## Benefits at a glance

- High throughput
- High final fineness
- Versatile in use
- Easy cleaning
- Exchangeable grinding and sieve inserts
- Quick-action door lock and motor brake
- Safe design to CE standard
- 2-year warranty

## Grinding large volumes in no time

The range of applications of the RETSCH beater mills is just as versatile as the wide range of accessories. They crush:

- **chemicals**
- **coal**
- **construction materials**
- **drugs /spices**
- **rare earths**
- **feed pellets**
- **fertilizers**
- **flue ash**
- **grains /seeds**
- **pharmaceuticals**
- **soils**

and many other materials.

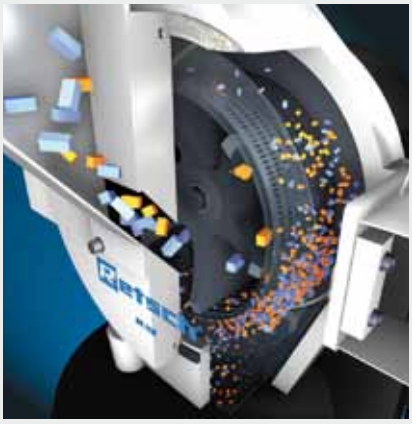
The **SR 200** with a speed of 2850 $min^{-1}$ (at 50 Hz) is available in gray cast iron. The mill can be attached to a bench or a wall bracket; however, it is preferable to mount it on the optional base frame.

The **SR 300** is the powerful "comfort" model. Due to the higher rotor speed (8100 $min^{-1}$ at 50 Hz) and drive performance higher throughputs with a usually higher fine material fraction are obtained. Grinding chamber, feed hopper and the material inlet and outlet are completely made from stainless steel. The hopper can be removed for easy cleaning. The mill is supplied complete with base frame.

## SR 200, SR 300 technology

Size reduction and deagglomeration in rotor mills are achieved by hammering, impact and shear effects. The feed material passes from the hopper into the center of the grinding chamber where it is crushed between the rotor, sieve and grinding inserts. As soon as the material is smaller than the aperture size of the sieve it enters the collecting receptacle.

The quick-acting door lock ensures easy access to the grinding chamber for quick cleaning. With their motor brake (braking time < 0.5 s), safety switch, splash-back and access barrier in the inlet and outlet areas, rotor beater mills offer the highest degree of operating safety.



# Ideal for laboratory and small-scale production

## Selection of accessories

For soft materials we recommend the **sieve frame with ring sieve 360°**. The **grinding insert 180°** with the corresponding sieve combines impact and shear effects and has proven itself with hard, brittle substances, especially on the low-speed SR 200.

The final fineness depends on the aperture size of the sieve, the breaking behavior of the feed material and the rotor speed. With many materials approx. 80% of the ground material is smaller than half the aperture size.

For thermally sensitive, slightly fatty or oily or particularly soft sample materials, size reduction with **distance rotors** is ideal. The larger grinding gap ensures a reduction in frictional heat, which prevents the sieve or the rotor from being blocked. This configuration is particularly efficient with the high-speed SR 300.

Among the standard accessories supplied with the rotor beater mills are a collecting receptacle (5 l) made from stainless steel and a textile filter hose. Further useful accessories can be found on page 12.

| Performance data | SR 200 | SR 300 |
|---|---|---|
| Applications | size reduction, deagglomeration | |
| Field of application | soft to medium-hard | |
| Feed size* | <15 mm | <15 mm |
| Final fineness* | <80 µm | <50 µm |
| Vessel capacity | 5 or 30 l | 5 or 30 l |
| Throughput* | up to 120 kg/h | up to 360 kg/h |
| Grinding chamber material | gray cast iron | stainless steel |
| **Technical data** | | |
| Drive | 3-phase and 1-phase motors | |
| Brake motor | yes | yes |
| Drive performance | 1.1 kW | 2.2 kW |
| Motor speed at 50 Hz (60 Hz) | 2850 $min^{-1}$ (3420 $min^{-1}$) | 8100 $min^{-1}$ (9700 $min^{-1}$) |
| Rotor peripheral speed at 50 Hz (60 Hz) | 20.5 m/s (24.5 m/s) | 58 m/s (69.5 m/s) |
| W x H x D (with base frame) | 560 x 1200 x 700 mm | 560 x 1200 x 700 mm |
| Weight (with base frame) | approx. 57 kg | approx. 95 kg |
| **Noise values** (noise measurement according to DIN 45635-31-01-KL3) | | |
| Emission value with regard to workplace | $L_{pAeq}$ 81 dB(A) | $L_{pAeq}$ 91 dB(A) |
| Measuring conditions: | | |
| Ring sieve | 0.5 mm trapezoid | 0.5 mm trapezoid |
| Feed material | rye, grain size up to 15 mm | artificial fertilizer up to 3 mm |

*depending on feed material and instrument configuration/settings

## Order data for Rotor Beater Mills SR 200, SR 300

| Rotor Beater Mills SR 200, SR 300 | Item No. |
|---|---|
| Rotor Beater Mill SR 200, supplied with rotor beater, filter hose (240 mm), collecting receptacle (5 l) (Please order sieve frame or grinding insert, sieves and, if required, base frame separately) | |
| SR 200 for 3/N~400 V, 50 Hz, rotor speed 2850 $min^{-1}$, gray cast iron | 20.732.0001 |
| SR 200 for 230 V, 50 Hz, rotor speed 2850 $min^{-1}$, gray cast iron | 20.732.0003 |
| Rotor Beater Mill SR 300, supplied with rotor beater, filter hose (240 mm), collecting receptacle (5 l) and base frame (Please order sieve frame or grinding insert and sieves separately) | |
| SR 300 for 3/N~400 V, 50 Hz, rotor speed 8100 $min^{-1}$, stainless steel | 20.733.1002 |

| Sieve frames and ring sieves for SR 200, SR 300 | | Item No. | | Item No. |
|---|---|---|---|---|
| Sieve frame 360°, grinding insert 180° | | | | |
| Sieve frame 360° | chrome-plated: | 22.642.0002 | stainless steel: | 22.642.0001 |
| Grinding insert 180° with frame | | – | stainless steel: | 02.143.0014 |

| | Trapezoid holes | | | | | | | | | Round holes | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aperture sizes in mm | 0.08 | 0.12 | 0.20 | 0.25 | 0.50 | 0.75 | 1.00 | 1.25 | 1.50 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 8.00 | 10.00 |
| Ring sieve 360°, stainless steel, for sieve frame 360° | | | | | | | | | | | | | | | | |
| Item No.: 02.407… | 0057 | 0026 | 0028 | 0029 | 0030 | 0031 | 0032 | 0058 | 0033 | 0034 | 0035 | 0036 | 0037 | 0043 | 0039 | 0040 |
| Sieve inserts 180°, stainless steel, for grinding insert 180° | | | | | | | | | | | | | | | | |
| Item No.: 03.647… | 0081 | 0039 | 0040 | 0041 | 0042 | 0043 | 0044 | 0045 | 0046 | 0047 | 0048 | 0049 | 0050 | 0051 | 0052 | 0053 |

| Accessories for SR 200, SR 300 | Item No. for SR 200 | Item No. for SR 300 |
|---|---|---|
| Base frame | 01.824.0028 | |
| Distance rotor, stainless steel | 22.717.0003 | 22.717.0004 |
| Beater rotor, stainless steel | 22.717.0001 | 22.717.0002 |

# Cross Beater Mill SK 100 comfort

## Hard-to-beat size reduction

The RETSCH Cross Beater Mill SK 100 comfort is suitable for coarse and fine size reduction, either in batches or continuously. It can process medium-hard and brittle materials with a hardness of up to approx. 6 on Mohs' scale. The SK 100 is intended for universal use: from sample preparation in laboratories and industrial plant, through pilot installations up to preparing batches in production facilities.

### Benefits at a glance

- High throughput
- High final fineness
- Versatile in use
- Easily changeable bottom sieves
- Wide range of accessories
- Maintenance-free direct drive
- Safe design to CE standard
- 2-year warranty

RETSCH cross beater mills are mainly used for reducing the size of:

- **cement clinker**
- **coke**
- **glass**
- **gravel**
- **minerals**
- **ores**
- **oxide ceramics**
- **slags**
- **soils**

and many other similar materials.

The maximum feed size for bulk goods is 15 mm, for single-piece feed 20 mm. The final fineness and throughput depend on the breaking behavior of the feed material and the aperture size of the bottom sieve. Due to the powerful drive it is possible to achieve a fineness <100 µm in a single working step in many cases.

The SK 100 comfort is distinguished by its extra operating comfort and standard of safety. The grinding chamber door can be opened and closed quickly and simply with its quick-action lock. This means that changing the bottom sieves and cleaning the grinding chamber hardly take any time at all. If the quick-action lock is accidentally opened then a safety switch activates the motor brake, so that the rotor comes to a standstill in less than 0.5 seconds. The feed hopper is equipped with access barrier and splash-back protection.

RETSCH cross beater mills are robust and maintenance-free and comply with the CE guidelines. Their high-quality finish also guarantees that the mills will have a long working life.

## SK 100 comfort technology

Size reduction in cross beater mills takes place by hammering, impact and shearing effects. The feed material passes from the hopper directly into the center of the grinding chamber, where it is caught by the cross beater and ground between the baffle plates of the cross beater and the toothed grinding insert. As soon as the material is smaller than the aperture size of the bottom sieve used, it passes through the sieve and enters the collecting receptacle. The air drawn in through the hopper by the cross beater accelerates the discharge of the ground material. The airborne fine fraction is separated off by a downstream filter system.

# Robust and efficient

## Mill versions

The mill housing is made from cast aluminum. Depending on the particular version (see table) the grinding insert and grinding tools are made from different materials. The choice of version depends primarily on the feed material. Chrome steel is recommended for hard feed materials, stainless steel for corrosive ones. Baffle plates made from steel 1.1740 can be used for heavy-metal-free grinding.

Bottom sieves made from trapezoid or round hole sheet are available in 14 aperture sizes. For heavy-metal-free grinding bottom sieves made from steel St 1203 are available in 6 aperture sizes.

The standard equipment supplied with the cross beater mills includes a stainless steel collecting receptacle (5 l) and a textile filter hose. The mill can be attached to a bench or a wall bracket; however, it is preferable to mount it on the optional base frame. Other useful accessories can be found on page 12.

| Performance data | SK 100 comfort |
|---|---|
| Application | size reduction |
| Feed material | medium-hard, brittle |
| Feed size* | <15 mm |
| Final fineness* | <100 µm |
| Collector volume | 5 or 30 l |
| Throughput* | up to 80 kg/h |

| Technical data | |
|---|---|
| Drive | 3-phase and 1-phase motors |
| Motor brake | yes |
| Drive performance | 1.1 kW |
| Motor speed at 50 Hz | 2850 $min^{-1}$ |
| Motor speed at 60 Hz | 3420 $min^{-1}$ |
| W x H x D (with base frame) | 560 x 1200 x 700 mm |
| Weight (with base frame) | approx. 58 kg |

| Noise values (noise measurement according to DIN 45635-31-01-KL3) | |
|---|---|
| Emission value with regard to workplace | $L_{pAeq}$ 86 dB(A) |
| Measuring conditions: | |
| Feed material | quartz gravel, grain size <3 mm |

*depending on feed material and instrument configuration/settings

| Versions | Grinding insert | Cross beater | Baffle plates |
|---|---|---|---|
| SK 100, cast iron | cast iron | cast iron | chrome steel |
| SK 100, chrome steel | chrome steel | cast iron | chrome steel |
| SK 100, stainless steel | stainless steel | stainless steel | stainless steel |
| SK 100, heavy-metal-free | cast iron | cast iron | steel 1.1740 |

## Order data for Cross Beater Mill SK 100

| Cross Beater Mill SK 100 | | | | | Item No. |
|---|---|---|---|---|---|
| Supplied with grinding insert, cross beater, baffle plates, filter hose (240 mm) and collecting receptacle (5 l) | | | | | |
| (Please order base frame and bottom sieve separately) | | | | | |
| Cross Beater Mill SK 100 comfort, version: | | cast iron | chrome steel | stainless steel | heavy-metal-free |
| SK 100 comfort | for 3/N~400 V, 50 Hz | 20.735.0001 | 20.735.0002 | 20.735.0003 | 20.735.1001 |
| SK 100 comfort | for 230 V, 50 Hz | 20.735.0007 | 20.735.0008 | 20.735.0009 | 20.735.1007 |
| SK 100 comfort | for 110 V, 60 Hz | 20.735.0010 | 20.735.0011 | 20.735.0012 | 20.735.1010 |

| Bottom sieves for SK 100 | | | | | | | | | | | | | | Item No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Trapezoid holes | | | | | | | | Round holes | | | | | |
| Aperture sizes in mm | 0.12 | 0.20 | 0.25 | 0.50 | 0.75 | 1.00 | 1.50 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 8.00 | 10.00 |
| Bottom sieves, stainless steel | | | | | | | | | | | | | | |
| Item No.: 02.407… | 0059 | 0013 | 0001 | 0002 | 0003 | 0004 | 0005 | 0006 | 0007 | 0008 | 0009 | 0010 | 0011 | 0012 |
| Bottom sieves, steel St 1203 for heavy-metal-free grinding | | | | | | | | | | | | | | |
| Item No.: 02.407… | 0083 | 0084 | 0085 | 0086 | – | 0087 | – | 0088 | – | – | – | – | – | – |

| Accessories for SK 100 | | | | Item No. |
|---|---|---|---|---|
| Base frame for SK 100 | | | | 01.824.0028 |
| Grinding tools, material: | cast iron | chrome steel | stainless steel | steel 1.1740 |
| Grinding inserts | 22.443.0001 | 22.443.0002 | 22.443.0003 | – |
| Cross beater | 22.716.0001 | – | 22.716.0002 | – |
| Baffle plates (3 pieces) | – | 22.526.0001 | 22.526.0002 | 22.526.0006 |

# Accessories for SR 200, SR 300 and SK 100 comfort

*Ring-type filter made from stainless trapezoid hole sheet*

The standard equipment supplied with the SR 200, SR 300 and SK 100 comfort includes a 5 l stainless steel collecting receptacle and a textile filter hose. By using the filter hose between the mill and collecting receptacle the flow of air produced by the rotating rotor is led away and back-pressure is avoided. It also accelerates the material throughput and ensures a gentle size reduction process.
Instead of the textile tube a ring-type filter made from stainless trapezoid hole sheet (aperture size 63 µm) can be used with or without a dust filter unit; this is easier to clean, particularly with fine dusts, and ensures a higher stability for the collecting receptacle.

If larger amounts are to be processed we recommend the use of the electromagnetic Vibratory Feeder DR 100 for uniform material feed and the 30 l collecting receptacle with the corresponding filter hose.

Mills SR 200 and SK 100 can be mounted on a workbench. However, it is preferable to mount them on the optional base frame.


## Order data for accessories

| Accessories for SR 200, SR 300 and SK 100 comfort | Item No. |
|---|---|
| Base frame for SR 200, SK 100 | 01.824.0028 |
| Set of rollers for base frame | 22.609.0003 |
| Vibratory Feeders* | |
| Vibratory Feeder DR 100 for 220 –240 V, 50 Hz, complete with feeding kit, 75 mm feed chute, hopper and holder | 70.937.0056 |
| Vibratory Feeder DR 100 for 110 –120 V, 60 Hz, complete with feeding kit, 75 mm feed chute, hopper and holder | 70.937.0057 |
| Stand for using DR 100 with SR 200, SR 300, SK 100 | 22.742.0003 |
| Filter and collecting receptacles | |
| Ring-type filter with trapezoid hole sheet for 5 liter collecting receptacle | 22.187.0001 |
| Dust filter clamping rings for ring-type filter, with 5 dust filters | 22.748.0001 |
| Dust filter for ring-type filter, 25 pieces | 22.524.0002 |
| Stainless steel collecting receptacle, 5 liter | 01.011.0023 |
| Filter hose for 5 liter collecting receptacle, length 240 mm, with comfort flange | 22.187.0003 |
| Spare filter hose for 22.187.0003 | 02.186.0027 |
| Plastic collecting receptacle, 30 liter | 22.003.0001 |
| Filter hose for 30 liter collecting receptacle, length 490 mm, incl. comfort flange | 22.187.0004 |
| Dirt collecting pan of plastic | 22.704.0001 |
| *accessories for vibratory feeders: please refer to "Assisting" leaflet | |

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