SM 100, SM 200, SM 300 & SM 400 – The Perfect Cutting Mill for Every Requirement

The RETSCH cutting mills provide highly efficient primary size reduction of heterogeneous material mixes but are also suitable for grinding soft, medium-hard, elastic or fibrous samples. With the SM 100, SM 200, SM 300 and SM 400 RETSCH offers four models for different requirements.

SM 100 – The Budget-Priced Basic Model

The Cutting Mill SM 100 with a strong 1.5 kW motor and a speed of 1,500 min^{-1} reliably comminutes products which do not require extremely high forces. It is particularly suitable for routine applications.

The budget-priced basic model can be equipped with two different push-fit rotors, push-fit bottom sieves with apertures from 0.25 to 20 mm and two different hoppers to adapt the mill to varying application requirements.

The SM 100 is easy to operate and clean. It can be mounted on a stable bench or on the optional base frame.

Benefits

- For routine applications at 1,500 min^{-1}
- Optimum cutting effects
- Quick and easy cleaning due to smooth surfaces and push-fit rotor and push-fit bottom sieves
- Defined final fineness due to bottom sieves with aperture sizes from 0.25 - 20 mm
- Highest safety standards

Video on www.retsch.com/sm

Cutting Mill SM 100
with optional base frame

SM 200 – The Universal Standard Model

Within the group of the RETSCH cutting mills, the SM 200 is the universal standard model which covers a vast range of applications with its strong 2.2 kW drive and 1,500 min^{-1} rotor speed. Thanks to the double acting cutting bars, the SM 200 provides optimum cutting effects.

The SM 200 can be optionally equipped with a cyclone-suction-combination for improved discharge of sample material, e. g. low density, fibrous material, from the grinding chamber. It can be used for volumes up to 30 l and provides cooling of the sample. The hopper can be folded back and the push-fit rotor and bottom sieves are easily removed for cleaning.

Cutting Mill SM 200

Benefits

- Powerful size reduction with 2.2 kW drive
- Quick and easy cleaning due to fold-back hopper, smooth surfaces and push-fit rotor
- Defined final fineness due to bottom sieves with aperture sizes from 0.25 - 20 mm
- Cyclone-Suction Combination available
- Wide range of accessories including various hoppers, collection systems, rotors and sieves
- Highest safety standards due to engine brake, central locking device, electronic safety check and base frame
- 18 cutting events per rotation with parallel section rotor

Video on www.retsch.com/sm

Superiority in Detail

Push fit rotors facilitate quick and easy cleaning

3 double acting cutting bars provide optimum cutting effects (SM 200 & SM 300)

Cyclone-suction-combination ensures adequate cooling of sample and cutting tools (SM 200 & SM 300)

SM 300 – The High Performance Model with RES Technology

The RETSCH Cutting Mill SM 300 offers particularly powerful size reduction, optimized cutting effects and easy cleaning. To allow for best possible adaptation to the sample properties with regards to breaking behavior and temperature sensitivity, the SM 300 features a variable speed from 700 to 3,000 min^{-1}. It can be adapted to successfully process both tough and thermally sensitive materials.

A reduction of speed demonstrably decreases the fines fraction of the ground sample as well as the heat development. An additional flywheel mass accounts for a very high torque which enables the SM 300 to grind many materials to analytical fineness in only one working run (RES technology).

The design of the grinding chamber geometry promotes good feeding properties for high sample throughput. It is possible to connect the cyclone-suction unit to the SM 300.

Cutting Mill SM 300

Benefits

- Powerful size reduction thanks to 3 kW drive with high torque and RES technology
- Perfect adaptation to application requirements by variable speed from 100 to 3,000 min^{-1}
- Optimum cutting effects thanks to double acting cutting bars
- Quick and easy cleaning due to fold-back hopper, smooth surfaces and push-fit rotor
- Defined final fineness due to bottom sieves with aperture sizes from 0.25 - 20 mm
- Wide range of accessories including various hoppers, collection systems, push-fit rotors and sieves
- Highest safety standards due to engine brake, central locking device, electronic safety check and base frame
- 18 cutting events per rotation with parallel section rotor

Video on www.retsch.com/sm

SM 400 – The Cutting Mill for Large Sample Pieces and Volumes

The Cutting Mill SM 400 is suitable for primary cutting of large sample pieces measuring up to 170 x 220 mm, but can also achieve the required final fineness in one step, depending on the application. The high torque of the innovative 3 kW drive allows for particularly effective primary size reduction of heterogeneous material mixes like waste or electronic components.

The cutting mill can also be successfully used for a variety of other materials. The sample is only slightly warmed which makes this mill suitable for processing heat-sensitive materials. The large 240 x 240 mm surface of the bottom sieves and the wide opening of the hopper allow for comminution of large sample volumes which results in a high sample throughput.

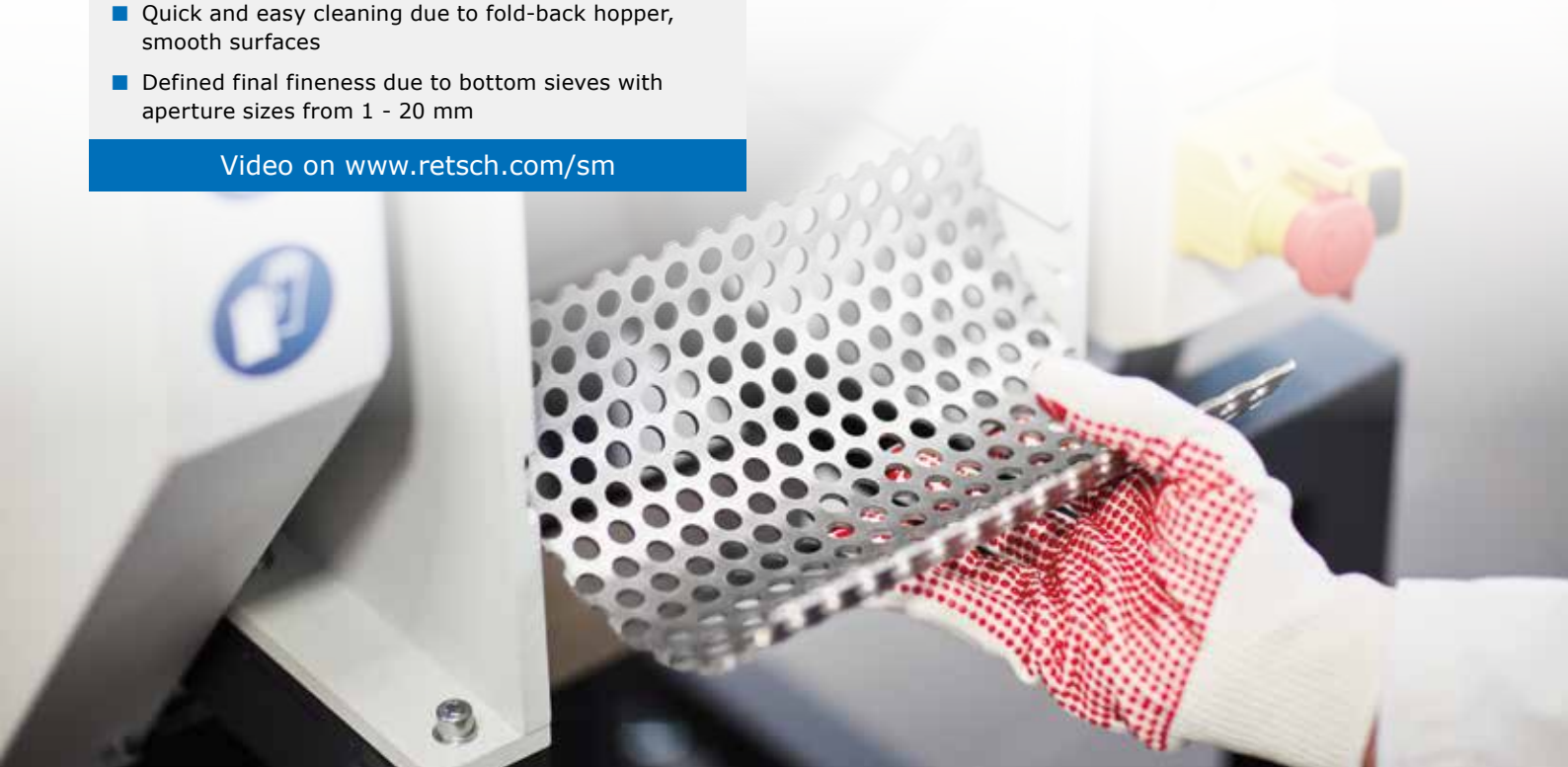
The SM 400 can be equipped with the optional cyclone-suction unit for easy processing of low density materials. Thanks to a variety of sieves, hoppers and collecting vessels the mill can be adapted to individual application requirements. Further options include an outlet for continuous grinding processes.

Cutting Mill SM 400

Benefits

- Powerful size reduction thanks to 3 kW drive
- Optimum cutting effects
- Accepts large feed sizes up to 170 mm x 220 mm
- Cyclone-suction unit and continuous outlet available
- Quick and easy cleaning due to fold-back hopper, smooth surfaces
- Defined final fineness due to bottom sieves with aperture sizes from 1 - 20 mm

Video on www.retsch.com/sm



Accessories and Options

A comprehensive range of accessories allows for quick adaptation to individual application requirements. All three models (SM 100, SM 200 and SM 300) are available in a special version for heavy-metal-free grinding (mill, rotor, sieves).

Rotors

- The parallel section rotor is equipped with 3 cutting plates and suitable for universal use
- The 6-disc rotor with its 18 replaceable and reversible hard metal cutting tips is mostly used for medium-hard and brittle materials and for preliminary cutting of coarse goods (SM 100, SM 200 & SM 300)
- The V rotor (only SM 300) very effectively cuts through fibrous and tough materials and promotes rapid sample discharge.

Cyclone-suction-combination (SM 200, SM 300 & SM 400)

- Efficient cooling of sample and cutting tools
- Beneficial for low-density materials and small sample amounts
- Especially suitable for large sample volume
- The cyclone accommodates sample bottles of 0.5 – 1 – 2 – 5 and 30 liters

Other accessories

- Universal or long stock hopper (SM 200, SM 300)
- Sieves from 0.25 to 20 mm, also for heavy-metal-free grinding (SM 200, SM 300) respectively 1–20 mm (SM 400)
- Collecting vessels from 0.25 l sample bottle to 30 liter plastic receptacle
- Stainless steel ring-type filter or textile filter hose help to remove dust
- Sieves with slotted holes available (SM 400)

Cutting Mills at a Glance

	Cutting Mills			
				
Model	SM 100	SM 200	SM 300	SM 400
Application	size reduction by cutting			
Fields of application	agriculture, biology, chemicals / plastics, food, engineering / electronics, medicine / pharmaceuticals, environment / recycling			
Feed material	soft, medium-hard, elastic, fibrous	soft, medium-hard, tough, elastic, fibrous		

Performance data

Feed size*	max. 60 x 80 mm	max. 60 x 80 mm	max. 60 x 80 mm	max. 170 x 220 mm
Final fineness*	d_{90} < 250 µm	d_{90} < 250 µm	d_{90} < 250 µm	d_{90} < 1,000 µm
Rotor speed at 50 Hz	1,500 min^{-1}	1,500 min^{-1}	100 – 3,000 min^{-1}	280 min^{-1}
Cutting bars	standard	double acting	double acting	standard
Rotors	6-disc rotor and parallel section rotor	6-disc rotor and parallel section rotor	6-disc rotor, parallel section rotor and V rotor	parallel section rotor
Hoppers	fixed	foldback	foldback	foldback
Collecting receptacle				
Standard	5 l	5 l	5 l	5 l
Options	0.25 / 0.5 / 30 l	0.25 / 0.5 / 30 l	0.25 / 0.5 / 30 l	0.25 / 0.5 / 30 l
Cyclone (option)	–	0.5 / 1 / 2 / 5 l / 30 l	0.5 / 1 / 2 / 5 l / 30 l	0.5 / 1 / 2 / 5 l / 30 l

Technical data

Drive	3-phase-motor	3-phase-motor	frequency-controlled 3-phase-motor	3-phase motor
Drive power	1,500 W	2,200 W	3,000 W with flywheel mass (approx. 28.5 kg)	3,000 W
Motor brake	✓	✓	✓	✓
W x H x D (with base frame and universal hopper)	582 x 1,675 x 700 mm	576 x 1,675 x 760 mm	576 x 1,677 x 750 mm	695 x 1,399 x 719 mm
Net weight	approx. 73 kg without base frame, hopper and rotor	approx. 90 kg without hopper and rotor	approx. 160 kg without hopper and rotor	approx. 180 kg without hopper
More information on	**www.retsch.com/sm100**	**www.retsch.com/sm200**	**www.retsch.com/sm300**	**www.retsch.com/sm400**

*depending on feed material and instrument configuration

Typical Sample Materials

RETSCH cutting mills are suitable for a vast range of applications. Typical samples include lignite, non-ferrous metals, electronic scrap, drugs, foils, feedstuff, spices, rubber, wood, cables, bones, plastics, leather, organic and inorganic waste, paper, cardboard, plants, refuse derived fuels, straw, etc.

before

after

Application example: wood