Mixer Mill MM 500

General Information

NEW

The mixer mill MM 500 is a compact, versatile bench-top unit which has been developed specially for dry, wet and cryogenic grinding of up to 2 x 45 ml sample material within seconds.

With a maximum frequency of 35 Hz, it generates enough energy to produce particles in the nanometer range. The robust high-performance drive makes the mill suitable for long-term grinding processes up to 99 hours. Hence, the MM 500 is the first mixer mill in the market to provide a real alternative to grinding in a planetary ball mill - with more comfortable handling and less warming effects.

Application Examples

alloys, animal feed, bones, ceramics, chemical products, coal, coke, drugs, electronic scrap, glass, grains, hair, minerals, oil seeds, ores, paper, plant materials, plastics, sewage sludge, soils, straw, tablets, textiles, tissue, tobacco, waste samples, wood, wool, ...

Product Advantages

- Machine
- powerful grinding by impact and friction with up to 35 Hz
- pulverization of two samples down to the nanometer range
- suitable for long-term grinding processes up to 99 h
- suitable for mechanochemistry applications
- batch size max. 2 x 45 ml
- user-friendly clamping system
- 3 different grinding modes (dry, wet or cryogenic)
- memory for 12 SOPs and 4 program cycles
- wide range of accessories including various jar and ball sizes, grinding tool materials, CryoKit
- convenient operation via 4.3" touch display
- can be controlled via RETSCH App
- Screw-Lock jars
- pressure-tight up to 5 bar
- grinding under inert gas (optional)
- jar design allows full use of the volume, also for wet grinding
- jars remain conveniently clamped for periodic sample extraction or visual checks

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Features

Applications	mechanochemistry, mechanical alloying, size reduction, mixing, homogenization, cryogenic grinding
Field of application	agriculture, biology, chemistry / plastics, construction materials, engineering / electronics, environment / recycling, food, geology / metallurgy, glass / ceramics, medicine / pharmaceuticals
Feed material	hard, medium-hard, soft, brittle, elastic, fibrous
Size reduction principle	impact, friction
Material feed size*	≤ 10 mm
Final fineness*	~ 0.1 µm
Batch size / feed quantity*	max. 2 x 45 ml
No. of grinding stations	2
Setting of vibrational frequency	digital, 3 - 35 Hz (180 - 2100 min^{-1})
Typical mean grinding time	30 s - 2 min
Dry grinding	yes
Wet grinding	yes
Cryogenic grinding	yes
Cell disruption with reaction vials	-
Self-centering clamping device	yes
Type of grinding jars	screw-lock with integrated safety closure devices
Material of grinding tools	hardened steel, stainless steel, tungsten carbide, zirconium oxide
Grinding jar sizes	50 ml / 80 ml / 125 ml
Setting of grinding time	digital, 10 s - 8 h
Total grinding time	99 h
Storable SOPs	12
Number of storable cycle programs	4 (with 99 repeats)
Electrical supply data	100-120V, 50/60 Hz; 200-230V, 50/60Hz
Power connection	1-phase
Protection code	IP 30
Power consumption	750 W
W x H x D closed	690 x 375 x 585 mm
Net weight	~ 60 kg
Standards	CE

Please note:

*depending on feed material and instrument configuration/settings

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Videolink

http://www.retsch.com/mm500

Function Principle

The grinding jars of the mixer mill MM 500 perform radial oscillations in a horizontal position. The inertia of the grinding balls causes them to impact with high energy on the sample material at the rounded ends of the grinding jars and pulverize it. Also, the movement of the grinding jars combined with the movement of the balls result in the intensive mixing of the sample. The degree of mixing can be increased even further by using several smaller balls.