



DRUM MILL TM 500

The Drum Mill TM 500 is a laboratory ball mill designed to grind large sample volumes up to 35 l. It accepts initial feed sizes of up to 20 mm and can achieve grind sizes down to 15 µm by friction and impact.

Hard, brittle or fibrous samples are pulverized in the 150 l drum filled with 80 kg grinding balls. The variable speed of 10 to 50 rpm, different grinding ball sizes and the possibility of long-term grindings of up to 100 h ensure perfect adaption to sample properties as well as reproducible results.

A Drum Mill TM 500 *foodGrade model* featuring a stainless steel 316L drum and hopper is available for applications where the sample must not be contaminated in any way.



[Click to view video](#)

DRUM MILL TM 500

INTELLIGENT SOLUTIONS

EASY OPERATION

Thanks to the feed hopper and optional separating screen for grinding balls/sample, operation of the drum mill TM 500 and handling of the required 80 kg of grinding balls are particularly ergonomic and simple.

The drum is easily emptied by an electronic tilt function. Parameters like grinding time, start delay, or interval mode are selected and stored conveniently via the operating display. Thanks to programmable grinding breaks it is also possible to process heat-sensitive sample materials. Intervals with forward and reverse mode combination are useful to avoid caking effects. For additional safety, the drum mill is equipped with an emergency switch for instant turn-off.

A grid funnel is available as an optional accessory, this special funnel allows easy separation of the grinding balls from the sample. By replacing the drum lid with a grid funnel, users can pour out the sample while keeping the balls inside the drum.



DRUM MILL TM 500

GRINDING OF GRAVEL

40 kg (27 l) sample were filled in the drum of the Drum Mill TM 500, and 80 kg (17.6 l) of 20 mm grinding balls were added. The drum mill was operated for several hours at 50 rpm.

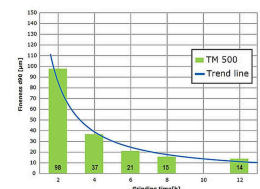
The fineness was measured after 2, 4, 6 and 8 h.

2h: D90 = 98 μ m

4h: D90 = 37 μ m



grus



6h: D90 = 21 µm

8h: D90 = 15 µm

Sample: Gravel 10-15 mm

Feed quantity: 27 l

Grinding balls: 80 kg, 20 mm diameter

DRUM MILL TM 500

TYPICAL SAMPLE MATERIALS

RETSCH drum mills are true allrounders. They homogenize, for example: activated carbon, alloys, bentonite, bones, carbon fibers, catalysts, cellulose, cement clinker, ceramics, chemical products, clay minerals, coal, coke, compost, concrete, electronic scrap, fibers, gypsum, glass, hair, hydroxyl apatite, kaolin, lime stone, metal oxides, minerals, ores, paint and varnish, paper, pharmaceutical products, pigments, plants, polymers, quartz, seeds, semi-precious stones, sewage sludge, slag, soil, tissue, tobacco, waste, wood, etc.

GRINDING GENTIAN ROOTS

22 l sample were filled in the drum of the Drum Mill TM 500, 80 kg of 30 mm grinding balls were added. The drum mill was operated for several hours at 50 rpm. The fineness was measured after 1 h.

1h: D90 = 130 µm

The optional separation unit to separate the ground sample from the balls was used.

Used separation grids: 22 mm for 30 mm grinding ball separation in the upper, middle and lower position.



To find the best solution for your sample preparation task, visit our application database.

DRUM MILL TM 500

OPTIONAL FEATURES



STAINLESS STEEL DRUM 316L FOODGRADE VERSION

For applications requiring heavy-metal free processing, a foodGrade version of the TM 500 is available which features a stainless steel 316L drum and feed hopper. Grinding balls made of 1.4404 steel are available in sizes 10 mm, 20 mm and 30 mm. This version is ideally suited for small scale production, for example in the food industry.



SIEVING SECTION

The optionally available sieve section facilitates the separation of the 80 kg grinding balls from the ground sample, which can contain up to 35 l. The drum is rotated so that the material falls onto the sieve section and the balls roll into a collecting vessel. The sample material is separated beforehand by the mesh inserts and is collected in separate collecting vessels. Common grinding ball sizes are 10, 20 or 30 mm, therefore three different separation grids can be used, which are also available in steel 316L.

DRUM MILL TM 500

VIRKEMÅTE

In a drum mill the sample (usually pre-crushed material) is placed inside the drum with the grinding balls and subjected to external forces.

The Ball Mill is used for fine grinding of solid matter by impact and friction in dry condition. The drum, which contains the sample and grinding balls, rotates around a horizontal axis. Whereas particles break more easily when larger grinding ball diameters are used, smaller diameters lead to a substantially higher final fineness.

DRUM MILL TM 500

TECHNICAL DATA

| | |
|-----------------------------------|--|
| funksjon | pulverizing, mixing, dry grinding |
| bruksområde | biologi, byggematerialer, chemistry, geologi / metallurgi, glass / keramikk, landbruk, maskinbygging / elektroteknikk, medisin / legemidler, miljø / gjenvinning |
| matemateriale | mykt, hardt, sprøtt, fibrøs |
| nedmalingsprinsipp | friction, impact |
| matestørrelse* | < 20 mm |
| sluttfinhet* | < 15 µm |
| prøvevolum* | min. 1 l / max. 35 l |
| Rotation speed | 10 - 50 min ⁻¹ |
| antall malestasjoner | 1 |
| material i maleverktøyet | herdet stål, rustfritt stål, steel 316L |
| Grinding drum sizes | 150 l |
| innstilling av maletid | digital, 00:00:01 to 99:59:59 |
| drift | 3- faset asynkron motor med frekvensomformer |
| drivkraft | 2.2 kW |
| Elektriske tilkoblingsdata | 200-240 V, 50/60 Hz |
| Nettilkobling | 1-fase |
| kapslingstype | IP 30 |
| kraftforbruk: | ~ 2200 W (VA) |
| b x h x d lukket | 1100 x 1604 x 936 mm |
| nettovekt | ~ 460 kg |
| Normer / standarder | CE |





*avhengig av matemateriale og apparatkonfigurering /apparatinnstillinger

[/tm500](#)

BESTILLINGSINFO

DRUM MILL TM 500

**Drum Mill TM 500 incl. drum 150 l with cover and fastening aid, base frame and feed hopper
(please order ball filling and optional separation unit separately)**

| | | | | Drum 150 l | Feed hopper |
|-------------|---|--------|------------------------------|--------------------|-----------------------|
| 21.403.1001 |  | TM 500 | 1/N~ 200-240 V, 50/ 60 Hz | steel 1.0037 | steel 1.0037 |
| 21.403.1002 |  | TM 500 | 1/N~ 200-240 V, 50/ 60 Hz | steel 1.4301 | steel 1.0037 |
| 21.403.1003 |  | TM 500 | 1/N~ 200-240 V, 50/ 60 Hz | steel 316L, foodG. | steel 1.0037 |
| 21.402.1001 |  | TM 500 | 1/N~ 200-240 V, 50/ 60 Hz | steel 316L, foodG. | steel 316L, foodGrade |

other electrical versions available for the same price

ACCESSORIES TM 500

BALL FILLINGS

| | |
|-------------|---|
| 23.455.0031 | Ball filling 30 mm Ø, steel 1.3505 |
| 23.455.0030 | Ball filling 20 mm Ø, steel 1.3505 |
| 23.455.0029 | Ball filling 10 mm Ø, steel 1.3505 |
| 23.455.0034 | Ball filling 30 mm Ø, steel 1.4404, foodGrade |
| 23.455.0033 | Ball filling 20 mm Ø, steel 1.4404, foodGrade |
| 23.455.0032 | Ball filling 10 mm Ø, steel 1.4404, foodGrade |

SEPARATION UNIT FOR GRINDING BALLS/SAMPLE (PLEASE ORDER 3 SEPARATION GRIDS - UPPER, MIDDLE, LOWER - SEPARATELY)


| | |
|-------------|--|
| 02.407.0148 | Separation unit incl. 4 collecting receptacles with carriage |
| 03.407.0149 | Upper separation grid, 22 mm for 30 mm Ø balls |
| 03.407.0152 | Upper separation grid, 14 mm for 20 mm Ø balls |
| 03.407.0155 | Upper separation grid, 6.5 mm for 10 mm Ø balls |
| 03.407.0150 | Middle separation grid, 22 mm for 30 mm Ø balls |

| | |
|-------------|--|
| 03.407.0153 | Middle separation grid, 14 mm for 20 mm Ø balls |
| 03.407.0156 | Middle separation grid, 6.5 mm for 10 mm Ø balls |
| 03.407.0151 | Lower separation grid, 22 mm for 30 mm Ø balls |
| 03.407.0154 | Lower separation grid, 14 mm for 20 mm Ø balls |
| 03.407.0157 | Lower separation grid, 6.5 mm for 10 mm Ø balls |

DRUM 150 L INCL. COVER AND FASTENING AID

| | |
|-------------|-----------------------------------|
| 23.462.0052 | Drum 150 l, steel 1.0037 |
| 23.462.0053 | Drum 150 l, steel 1.4301 |
| 23.462.0051 | Drum 150 l, steel 316L, foodGrade |

ADDITIONAL ITEMS TM 500

| | |
|-------------|---|
| 01.107.0704 | Cover for drum, steel 1.0037 |
| 01.107.0712 | Cover for drum, steel 1.4301 |
| 01.107.0703 | Cover for drum, steel 316L, foodGrade |
| 23.785.0026 | Feed hopper, steel 1.0037 |
| 23.785.0025 | Feed hopper, steel 316L, foodGrade |
| 02.785.0211 |  Discharge hopper with separation grid |
| 05.045.0071 | Collecting receptacle, 83.8 l for separation unit |
| 05.045.0073 | Collecting receptacle, 43.5 l for separation unit |
| 23.906.0002 | Carriage, for collecting receptacle |
| 23.728.0001 | Fastening aid for drum cover |