LAARMANN®

Innovators in Solids

Sample Preparation

PULVERISER RING MILLS



FOR RAPID FINE GRINDING DOWN TO ANALYTICAL FINENESS OF HARD, BRITTLE AND FIBROUS MATERIALS

PULVERISER RING MILLS



Features and benefits

- High power (3-phase) motors
- Pneumatic bowl lid clamping
- Safety switch at the cabinet lid
- Integrated emergency Stop-button
- CE - certified
- Programmable control (Time, interval parameter etc.)
- Motor overload protection
- Programmable right- / left rotation
- Contamination free grinding because of different grinding set from various materials
- Endfineness < 45µm

Ring Mills for the fine grinding of hard to brittle and fibrous material

The LAARMANN ring mills are essential for all applications which demand the grinding of hard, brittle and fibrous material down to analytical end fineness.

Method of operation

With a LAARMANN Ring Mill you put the sample together with a disc or a set of rings and roller in a bowl to bring it all together into 3-dimensional vibrations.

Inside the bowls the sample will be ground and homogenized by high pressure, impact and friction rapidly down to analytical end fineness. Typically samples are ground to 90-95% <75µm in app. 3 minutes.

Exact time and end fineness depends on the sample characteristics

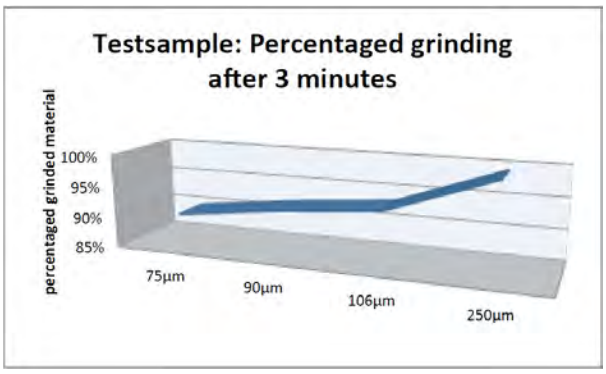
LAARMANN Ring Mills are appropriate for bowls up to a volume of 5000cc

According to the desired maximum volume of the bowls you can select between LAARMANN Ring Mills

- LM 250: Bowl 30cc to 300cc
- LM 1000: Bowl 30cc to 1000cc
- LM 2000: Bowl 30cc to 2000cc
- LM 5000: Bowl 5000cc

The optional Liftboy makes the handling of the larger grinding sets more easy.
By a digital display all parameters can be programmed and controlled very easily (time, interval, right-left rotation...)

The cabinet has a drawer to collect dust and any excessive material. Additionally the cabinet can be separated from the vibrating unit very easily for service



Ring Mill grinding graph



LM1000 Pulveriser Ring Mill with lifting divice and sound isolation



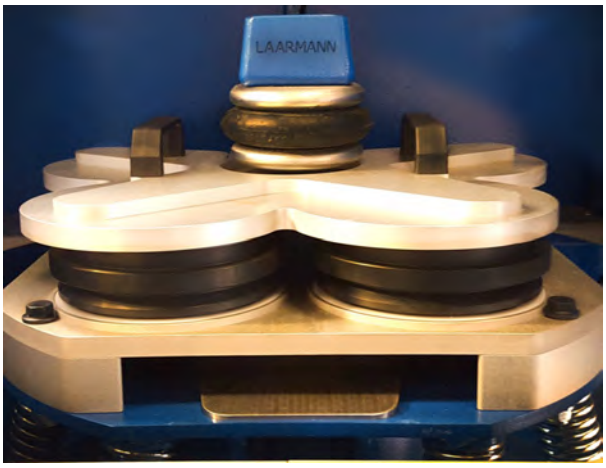
Chrome steel, zirconium and tungsten carbide ring mill sets

Multi bowl adapter plate

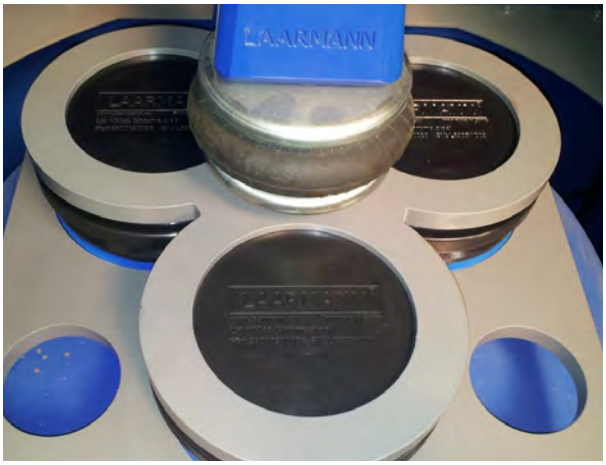
Ring mills fitted with an adapter plate, specifically made to hold up to three or four grinding bowls at once, offer an effective method of processing large numbers of samples.

The adapter plate guarantees that all the grinding bowls will be correctly situated within the ring mill, facilitating the simultaneous grinding of more than one sample. This method proves useful for any laboratory or industry that requires fast and reliable grinding of more than one material at a time.

The adapter plate is specially designed to fit perfectly into the mill, ensuring the stability of the whole process and the even distribution of grinding forces among all the bowls.



LM2000 with 4 x 100ml adaptorplates



LM2000 with 3 x adaptor plates

Accesories

LAARMANN bowls, rings and rings are available in various materials as follows:

- Chrome steel
- Hardened steel
- Tungsten carbide
- Silicon nitride
- Zirconium oxide
- Agate
- Pu coated



Adaptor plates with bowls , spacer rings and rollers

Applications

The LAARMANN ring mills are used across industries where rapid, representative fine grinding is required.

Application areas include geological and mining analysis (drill cores, ores, and mineral concentrates for XRF and fire assay), cement and construction materials (clinker, slag, and fly ash for quality control), environmental and soil science (soils and sediments ahead of trace-element determination), ceramics and refractories, metallurgical slags and metal oxides, and agricultural or food materials such as dried grain and plant tissue.

Example materials:

- Minerals / ores / slags / ferroalloys
- Cement / cement clinker / concrete
- Glass / ceramics / corundum
- Coal / coke / drill core
- Bauxite / ilmenite / fluorspar
- Dried soil / sediment / plant material

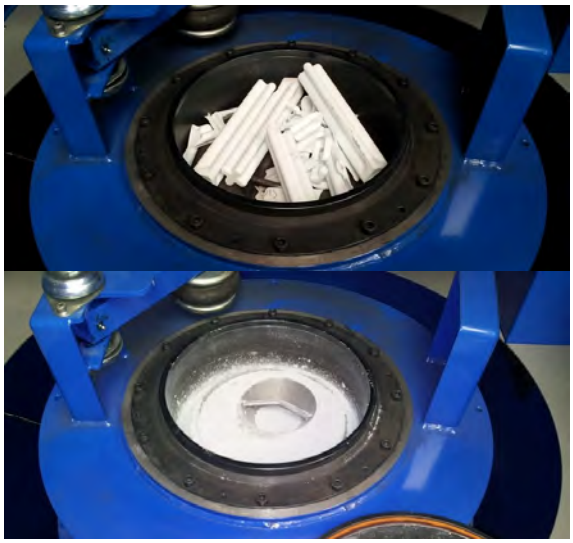
The reason why the ring mill is ideally suitable for such applications is the high grinding energy, short grinding times, and uniform size reduction.

Since the grinding occurs in an enclosed vessel, minimal losses occur, and the sample stays true to the original, which is highly important when using analytical methods.

Another benefit of the ring mill is the interchangeable grinding sets made from tungsten carbide, hardened steel, zirconium oxide, or agate, allowing setting up the ring mill in such a way that will satisfy not only the hardness of the sample but also the conditions of contamination required by the further analysis.



LM5000 PCE application



LM5000 alumina tubes application



LM5000 glass and ceramics application

Technical specifications

	LM250	LM1000	LM2000	LM5000
Applications	ultra-fine grinding of hard, brittle, and abrasive materials, providing samples for analysis in mining, metallurgy, and geo-chemistry laboratories			
Working principle	Friction			
Feed size	< 15 mm	< 25 mm	< 25 mm	< 25 mm
End fineness*	< 75 µm	< 75 µm	< 75 µm	< 75 µm
Throughput	30-300cc (cm^3)	30-1000cc (cm^3)	30-2000cc (cm^3)	5000cc (cm^3)
Speed setting	Up to 1450 rpm	Up to 1450 rpm	Up to 1450 rpm	Up to 1450 rpm
Setting adjustment method	digital control panel	digital control panel	digital control panel	digital control panel
Consumable material	standard steel, chrome steel, zirconium, tungsten carbide others on request			
Consumable sizes	300ml bowls and 800cc (cm^3) discs	1000ml bowls and 800cc (cm^3) discs	2000ml bowls and 800cc (cm^3) discs	3500ml bowls and 800cc (cm^3) discs
Power supply	400V ± 10% - 50/60Hz	400V ± 10% - 50/60Hz	400V ± 10% - 50/60Hz	400V ± 10% - 50/60Hz
Electrical requirements	1,3 kW	1,5 kW	2,2 kW	2,2 kW
Power connection	3 phase	3 phase	3 phase	3 phase
Dust extraction point	1	1	1	1
Standard	CE	CE	CE	CE
Protection code	IP40	IP40	IP40	IP40
Weight	210kg	230kg	475kg	3000kg
Dimensions (width x length x height)	550 x 602 x 1032 mm	550 x 602 x 1032 mm	741 x 1087 x 1378 mm	3697 x 1775 x 2255 mm

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