

## Product datasheet

# Essa® LM5 Pulverising Mill

Proven since 1985, the large and strong-performing Essa® LM5 pulverising mill has unique safety and operational features to guarantee ease of use and quality sample preparation.

## Benefits

- Single stage sample preparation in an enclosed mill.
- Fixed bowl capable of handling up to nominally 5000 cc to produce a well mixed sample with decreased handling.
- User-friendly pneumatic bowl clamping for increased efficiency.
- Stationary 4 kW motor and drive shaft arrangement to provide a reliable drive system and increased motor life.
- Lid safety switch and emergency stop button for improved safety.
- Vacuum gun for efficient and safe removal of pulp residue reducing contamination.
- Millmate air lift crane supplied as standard for safe operation.
- Proven to perform well with continuous use.
- Mineral industry recognised standard used by many major commercial laboratories.

# Proven performance and ease of use



## Excellent capabilities for large sample sizes

The workhorse LM5 is driven by a powerful 4 kW electric motor and is rated to take sample volumes up to nominally 5000 cc. Its optimal performance is achieved with sample weights of between 2.5 kg and 3.5 kg, at which it can pulverise most rock types to 90% passing 75 microns in only six minutes.

The LM5 mill is used for pulverising larger sample size ores, minerals, metallurgical samples, ceramics, soils, aggregates, chemicals and similar particulate. It is highly suited to the gold mining industry, especially where 'nuggety' samples are more common. Due to its grinding motion the LM5 has an excellent record for producing a suitably blended large pulp sample for analysis.

Operators who benefit most include high volume mineral laboratories that regularly prepare large samples in the unique Essa® single puck style of bowl.

## Built to handle high workloads

The Essa LM5 is tried and tested to perform excellently during continuous operation. Samples can be prepared in a single stage enclosed mill, making it highly efficient. It is often used in series with two or three machines and one operator when larger or harder samples require longer grind times to achieve a finer product.

The fixed bowl can handle a high workload of nominally 5000 cc. It also has secure and reliable pneumatic bowl clamping, which means less manual exertion and increased productivity. This combination of high workloads and efficiency is why the LM5 is recognised as a profitable mill with a low cost of operation.

## Designed to reduce wear

With a proven Essa design, the drive arrangement of the LM5 pulverising mill differs to traditional integral vibratory motor driven mills. It has a vibratory head driven by a universal shaft powered by vee-belts from a standard, stationary (non-vibrating) 4 kW electric motor. This drive arrangement delivers more power to the grinding bowl and optimises motor life by preventing exposure to direct vibration, like in traditional vibratory mills.

The LM5 also features an external control box that helps to accurately control grinding cycles to gain optimum particle reduction and reduced bowl wear.

## Refined safety features

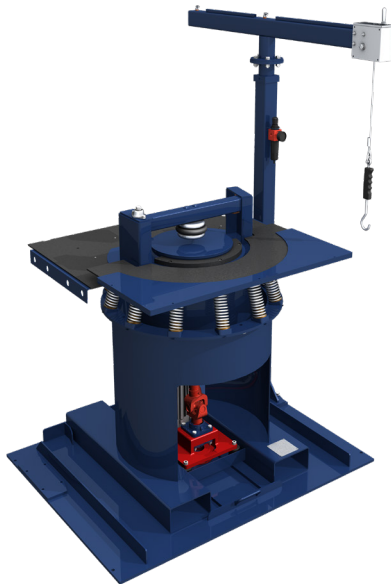
The Essa LM5 has been on the market for more than 30 years and has proven its superiority in terms of operation and safety. Over time, it has undergone minor refinements, continuously improving on ease of use and safety. Its valuable safety features include:

- An external control box with motor overload, timer and pneumatic failure protection, preventing the lid from flying out in an uncontrolled manner.
- A lid locking safety switch, which incorporates a time delay, to make the mill platform and chamber inaccessible unless the machine is completely stopped.
- An easily accessible emergency stop button.
- A Millmate pneumatic air lift crane to reduce manual handling.

# The benefits of using a large capacity bowl and disc system

For samples containing coarse gold and/or for unusually big or heterogeneous samples, many laboratories prefer to jaw crush the sample followed by pulverising the entire test sample using Essa LM5 mills, avoiding any sample splitting which may compromise the representativeness of large samples. The pulverising takes place in a large bowl and provides a large, well-mixed test sample for suitable subsampling.

The pulverising action in LM5 is based on both impact and grinding. The LM5 is also suitable for pulverising reverse circulation (RC) samples and for percussion drill chip samples,



The LM5 has the following distinct advantages:

## Sealed system

The mill is totally sealed and therefore minimises any likelihood of sample loss or contamination from airborne dust.

## Fine grind size

The LM5 mill is capable of grinding the entire 3.5 kg sample to a nominal 75 microns.

## Large sample weight

Samples up to 3.5 kg can be pulverised in a single preparation step.

## Sample homogenisation

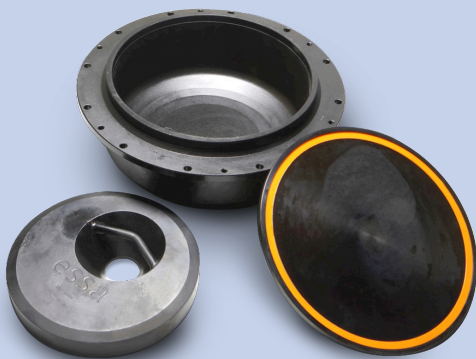
Because grinding takes place in a large enclosed bowl, the entire sample is both pulverised and blended in a single step. This avoids sampling problems inherent with disc or cone mills, where samples need to be lap mixed or rotary divided to produce a less heterogeneous analytical sub sample.

## Single stage preparation

For RC, RAB, percussion drill and soil samples, a large sample can now be prepared in a single stage enclosed mill.

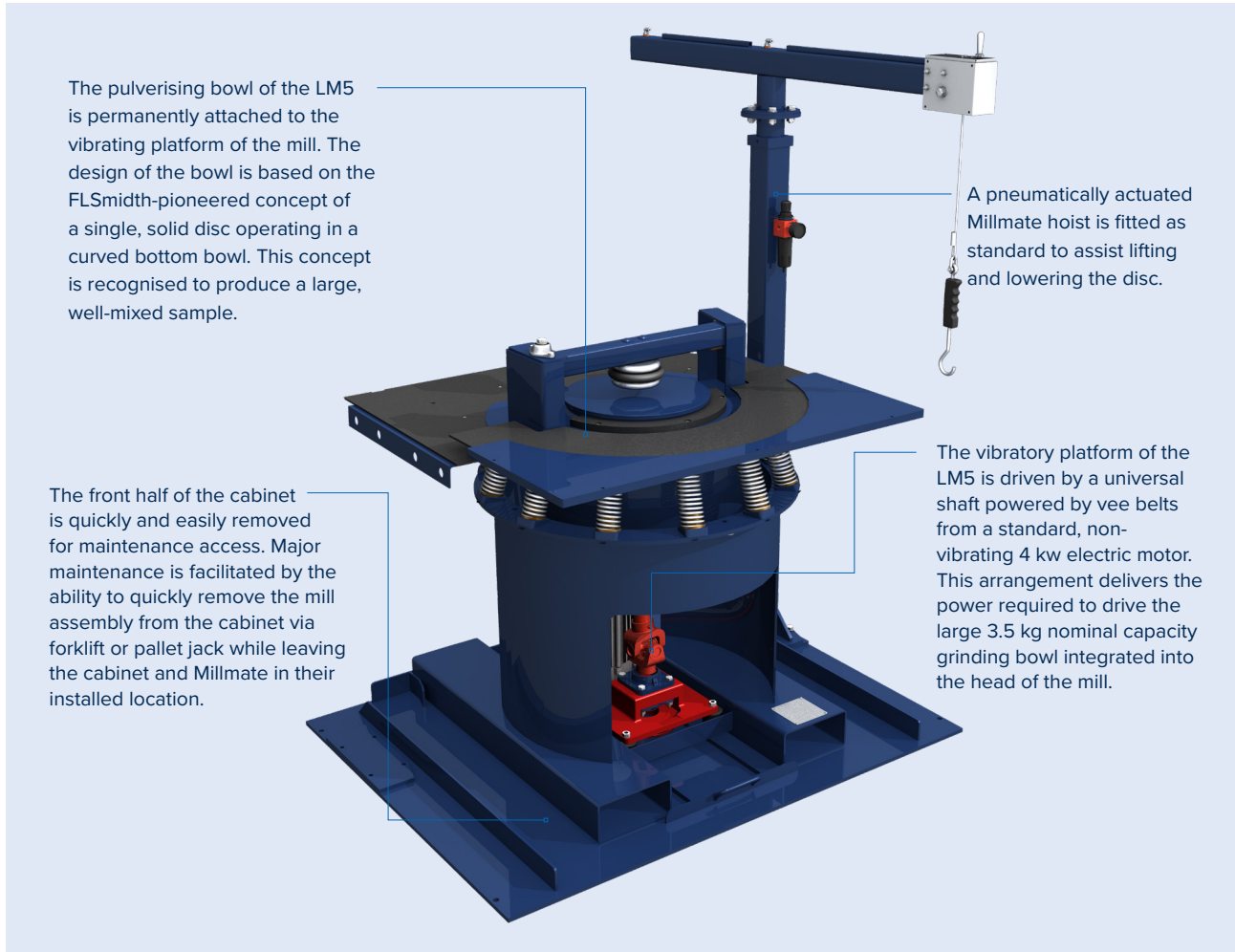
## Ease of cleaning

By removing the lid of the LM5 between samples, the entire grinding surface is exposed for inspection and cleaning, thus eliminating any sample 'hang up' and contamination of the next sample.



The LM5 is uniquely placed to prepare large samples in one step

# The pioneer of large-capacity sample pulverising



The pulverising bowl of the LM5 is permanently attached to the vibrating platform of the mill. The design of the bowl is based on the FLSmidth-pioneered concept of a single, solid disc operating in a curved bottom bowl. This concept is recognised to produce a large, well-mixed sample.

A pneumatically actuated Millmate hoist is fitted as standard to assist lifting and lowering the disc.

The front half of the cabinet is quickly and easily removed for maintenance access. Major maintenance is facilitated by the ability to quickly remove the mill assembly from the cabinet via forklift or pallet jack while leaving the cabinet and Millmate in their installed location.

The vibratory platform of the LM5 is driven by a universal shaft powered by vee belts from a standard, non-vibrating 4 kw electric motor. This arrangement delivers the power required to drive the large 3.5 kg nominal capacity grinding bowl integrated into the head of the mill.

## Specifications

<b>Feed size</b>	<20 mm
<b>Grinding capacity</b>	1000 g to 3500 g
<b>Compatible grinding</b>	B5000 (nominally 5000 cc)
<b>Grinding bowl material</b>	Standard Steel
<b>Timer settings</b>	1 sec to 60 hr
<b>Motor power</b>	4 kW
<b>Electrical requirements</b>	380–415 V 50 Hz three phase AC or other power configurations as required

<b>Compressed air requirements</b>	Clean, dry air service required for pneumatic bowl clamping: 700 kPa supply with a minimum flow of 1 L per minute
<b>Mill dimensions (W x D)</b>	1530 mm x 1535 mm x 1550 mm
<b>Working mass</b>	585 kg
<b>Shipping dimensions (W x D x H)</b>	1400 mm x 1500 mm x 1600 mm
<b>Shipping mass</b>	775 kg (approximate)

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