

LAARMANN[®]

Innovators in Solids



LMBR2000 BOTTLE ROLLER USER MANUAL

Laarmann Group B.V.
Op het Schoor 6
6041 AV
Netherlands

info@laarmann.eu
www.laarmann.eu
webshop.laarmann.eu
+31 6 23 40 00 33

Contents	Page
1 Safety instructions	3
1.1 Safety symbols	3
1.2 Safety instructions	3-4
2 General Discription	5
2.1 Improper Usage	5
3 Technical features	5
3.1 Construction	5
3.2 Technical data	5
4 Installation	6
4.1 Unpacking	6
4.2 Selecting the right place	6
4.3 Connecting the power cord	6
4.3 Environmental conditions	6
5 Instructions for use	7
5.1 Overall view	7
5.2 Instructions for use	8-9
6 Working Instructions	10
6.1 General	10
6.2 Starting the milling process	10
6.3 Stopping the milling process	10
7 Troubleshooting	11
8 Maintenance	11
8.1 Wear	11
8.2 Cleaning	11
9 CE Certificate	12

1 Safety instructions

Before using the machine, make sure to read and understand this manual thoroughly. Keep the manual close to the machine, easily accessible to all the users. Improper operation can cause injury to persons or damage to the equipment.

1.1 Safety symbols

The following are the warning symbols that are used in this manual.



Failure to comply with the sections of text marked in this way result in danger. Injuries are possible. Damage to the mill and accessories is possible, special care is required.



This symbol marks instructions for correct execution of certain jobs of work, e.g. that the work may only be carried out by an electrician.



This symbol indicates risks associated with hot surfaces.

1.2 Safety instructions



Safety instructions

Claims for damages in any form whatsoever, for injury to persons or damage to the machine, caused through non-observance of the following safety instructions, are excluded.



Use according to the intended purpose

Do not make any alterations to the machine and use only approved spare parts and accessories. Otherwise the Declaration of Conformity will lose its validity and this will also lead to the loss of any guarantee claims.



Transport

Do not knock, shake or throw the LMBR2000 during transport. Otherwise the electronic and mechanical components may be damaged.



Packing material

Please keep the packing material for the duration of the guarantee period. In case of a complaint and return of the machine in unsuitable packing material, your guarantee claim will be lost.

**Temperature variations**

If the LMBR2000 is subjected to high temperature variations, protect it against condensed water. Otherwise the electronic components may be damaged.

**Ambient temperature**

If the temperature drops below +5°C or exceeds +40°C, electronic and mechanical components can be damaged. Performance can be changed to an unknown extent.

**Atmospheric humidity**

If the humidity exceeds 85%, electronic and mechanical components can be damaged. Performance can be changed to an unknown extent.

**Electrical connection**

If the values for the mains power supply on the name plate are not observed, the electrical and mechanical components may be damaged.

**Inserting grinding media**

Ensure that the grinding media are inserted correctly in the machine. Otherwise they can be damaged, when starting the machine

**Removing and opening hot grinding media**

When removing and opening hot grinding media, always wear protective gloves. There is a danger of burning the hands

**Materials**

Observe the relevant regulations and directives for handling chemicals and hazardous materials. Milling of materials, which give a risk of fire or explosion, is prohibited.

**Cleaning**

Do not clean the LMBR2000 under running water. Danger to life through electric shock. Use only a soft cloth moistened with water. Cleaning agents and solvents should not be used, not for cleaning the milling tools either.

**Electrical connection**

If the values for the mains power supply on the name plate are not observed, the electrical and mechanical components may be damaged.

2 General Discription

The LMBR2000 is a laboratory machine used for bottle rolling. The rollers can be adjusted to fit several sizes of bottles. Using the bottle roller will result in grinding and mixing the sample at an adjustable rotating speed.

3 Technical features

3.1 Construction

The housing of LMBR2000 is made of steel with powder coated RAL5005 paint.

Protective equipment

The bottle roller is equipped with a safety cage and closed down with a safety magnetic switch. The cage will be supported with pneumatic springs.

Starting of the machine is possible only when:

- power is connected;
- the emergency switch is not activated;
- all parameters are given to the digital program of the machine.

3.2 Technical data

Power supply	220/240V \pm 10% - 50/60Hz
Rated power	700W
Timer	5 sec - 99 days
Bottle volume	Adjustable
Dimensions W x D x H	2453 x 1112 x 1090 mm (2145mm with safety cage open)
Weight	470kg
Noise emission (without milling bottle)	50 dB(A)
Ambient temperature	+5°C - +40°C
Atmospheric humidity	< 85% RH

4 Installation

4.1 Unpacking

Before the installation, carefully examine the delivery for possible damage or missing parts. Open the crate and take the machine out of the box. Check that the machine has not been visibly damaged during the transport.

Please keep the packing material for the duration of the guarantee period. In case of a complaint and return of the machine in unsuitable packing material, your guarantee claim will be lost.

Check that the mains cord is compatible with the local standard.

If any kind of damage occurred during transport, immediately make a complaint to the carrier. Any incorrect delivery or missing parts should be reported to the distributor.

4.2 Selecting the right place

When selecting the right place for the machine, please consider the following:

- Put the device on smooth, horizontal and stable place.
- Leave enough space beyond the device for normal air circulation, min. 200 mm at the back of the machine.
- Leave enough space around the device, that you will easy control and maintain it.
- Don't use the device in surroundings, where there are fast temperature and humidity changes. Also avoid places exposed to direct sunlight and places nearby heating devices.
- Avoid places, where the possibility of shocks and vibrations exists.

Note: The machine should not be placed so, that it is difficult to pull out the cord plug from mains power supply.

4.3 Connecting the power cord

The correct voltage and frequency for the LMBR2000 are given on the name plate. Ensure that these values correspond to the available power supply system.

To avoid interference from noise, surges and spikes, a dedicated line is preferred. If no such line is available, avoid lines to which powerful electric motors, refrigerators and similar devices are connected.

The power can be turned on and off by the emergency switch, located on the front cover at the right side of the machine. Light in the switch indicates, when the power is on.

4.4 Environmental conditions

The machine has been built for operating in laboratory environment. Therefore the environmental conditions should be the following:

- Temperature from +5°C to +40°C
- Humidity up to 85% RH, non-condensing

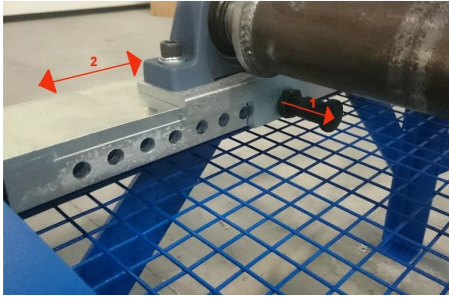
5 Instructions for use

5.1 Overall view



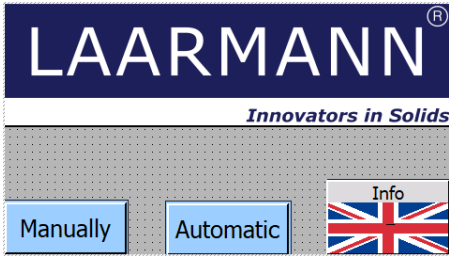
Element	Description	Function
A	Control panel	Used to set up programs and control the machine
B	Emergency stop button	Can be pressed in case of emergency to stop the machine
C	Safety switch	To close the cage properly
D	Safety cage	Protection to prevent objects from falling in
E	Rollers	Used to place the bottles on

5.2 Instructions for use



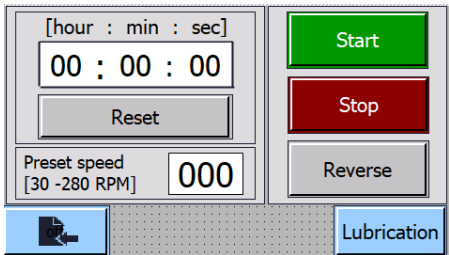
Adjust the rolls to meet the requirements suitable for the used bottles.

Pull the black locking knob (1) on both sides of the roll and slide the roll into the right position (2).



Activate the screen by pushing any button on the display.

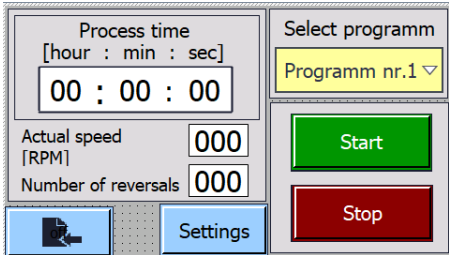
Here you can select **Hand controls** for manual input or select **Automatic control** for custom automatic programs



Hand control

Hand control is usually chosen for short operations or testing parameters. choose a RPM by clicking the **Speed** button between 30 to 280 RPM and then press **Start** to begin. You can see the running time in the time screen. press reverse to change to rotation direction.

While running the button is colored in green. Press the stop button to stop the Bottle roller



Automatic control

In the first screen a specific program can be selected. If you want to change the parameters of a specific program press settings

Press **Number of reversals** to choose the amount of times the rotation direction will change within the running time.

Press **Speed** to adjust the RPM. Adjustable between 30 and 380

Press **Time** to adjust the program running time can be set up between 1 second and 99 days, 99 hours, 99 minutes and 99 seconds. Choose according to your application. The correct times and rpm are depending on the sample

Overview of the parameters of the program. Simply press **Start Program** to begin

Press exit if you want to start over and change the parameters

Display of the program while running. Can be stopped by pressing the **stop program** button or when pressing the emergency stop button



Errors and notifications

In case of an emergency use the emergency stop. After release of the emergency stop press the screen to reset. In case of this message, please check all the emergency stops and verify that the installation doors are correctly closed.

To release the emergency stop you need to turn it and it will come up. After verifying that all stops are checked press the message to continue.

*Alarm tablemotor drive.
Switch off machine.
Wait 60 seconds.
Turn on machine.
Press to continue.*

In case of this message please contact authorised personnel to check the motor of the machine.

After visual inspection and ensured that no parts are either broken or damaged, contact an electrical engineer to verify the connections.

When everything is checked, run the machine in hand control without grinding media inside. If the machine works properly you can resume using it as normal. Should it still not work, please contact Laarmann.

*Lid not closed.
Press to continue.*

Close the “cage” and push the safety lock in place. Press the screen to continue

LAARMANN can add any language to the interface of the display contact LAARMANN for more information

In the lubrication menu there is a time when the next lubrication need to happen the time is 72hours in total. The timer will go down when the machine is running. When lubricating the machine needs to be running.

Press start to start running on the lowest speed and press stop after the lubrication is finished.

6 Working Instructions

6.1 General

The LMBR2000 is a high performance product. It is used mainly in the processing minerals. LAARMANN bottle rollers are used for ultra-fine grinding and mixing for laboratory and small batch production.

6.2 Starting the milling process

- Open the lid of the machine and put in the required amount of bottle onto the rolls.
- Set the parameters as described before



The milling process can only be started, when the hood is closed, the power is connected and when the air pressure is high enough.



Do not open the hood during the milling process, also not by force.



Do not mill inflammable or explosive samples! For these kind of samples, please contact LAARMANN for special features.



Please note that the properties and therefore the dangerous nature of your sample, can change during the milling process.

6.3 Stopping the milling process

- Stop the milling operation by pressing the emergency switch.
- Pressing stop on the display
- When the milling time elapses, the milling process is automatically ended. The display is reset to the last set value.



When removing and opening the bowl, always wear protective gloves. There is a danger of burning the hands.

7 Troubleshooting

Problem

Machine is not starting

Explanation / Solution

Check the mains power supply.

Call the emergency knob and release it.

Check if you have the correct settings for running the program.

Display doesn't work.

Call authorized service.

Should the problem not resolve, please contact LAARMANN.

8 Maintenance

LMBR2000 needs to be greased with intervals of 150 hours. The grease should be applied to the bearings of the roller LAARMANN advises to use LAARMANN GREASE. Similar can be graphite free, high temperature grease.

8.1 Wear

The milling tools can become worn out, depending on the frequency of the milling operation and the milled material. The milling bowl, lid and puck should be regularly checked for wear and replaced, if necessary.

8.2 Cleaning



Before cleaning the machine, unplug the mains cord from wall socket.

Use only a soft cloth moistened with water. Cleaning agents and solvents should not be used, not for cleaning the milling tools either.



Do not clean the LMBR2000 under running water. Danger to life through electric shock.



Bottle Roller
Type LMBR2000

Product	Bottle roller
Model	LMBR2000
Power supply	220/240V/50Hz

This declaration of conformity confirms compliance of the above mentioned equipment to the relevant sections of the following European Directives:

91/368EWG	European machine guideline
73/23/EWG	EC Low Voltage Guidelines
EN 292, 294, 418	Safety guidelines
VBG 1,4,5 en 22	General electrical facilities
89/336/EEC	Electromagnetic Compatibility Directive (EMC)
EN 5008-1-1992	Emissions
EN 50082-1-1992	Immunity
EN 60204-1 Part 1	Safety of Machinery – Electrical Equipment of Machines

WARNING:

This equipment is required to be operated strictly in accordance with the instructions given in the operating manual supplied with the product. All supply voltages and frequencies as stated on the rating plate must be used. External power cables and connectors must be supplied by LAARMANN. Any additional equipment used must be of a type approved by LAARMANN.

This conformity certificate will lose its validity in case of:

- Usage of unlicensed spares
- Usage of unlicensed accessories
- Any self made modifications of the machine