



Instructions Manual

Laboratory Mill

MB-5

5810050

1. Safety

The machine has to be operated and maintained in accordance with this Instruction. Any illegal operation may cause damages to the machine and make it stop working.

2. Power

Before connecting the power, make sure if the voltage of the working place is consistent with the voltage that the machine requires (allowing a deviation of +/- 10%), and ensure the rated load of power socket has to be more than machine's request.

3. Power Cord

The machine is usually suggested to be used with independent power cord. If the power cord is broken, it has to be replaced. And the same type and specification of the power cord should be replaced. When it is working, any other goods are not allowed to be put on the power cord. Especially do not put the machine in the area where people often walk around.

4. Environment of the machine's location

Equipment should be located under condition of Cooled, ventilated, dried, dust-proof environment

1. Introduction of product

MB lab roll ball mill is a kind of equipment with easy operation, reliable and compact structure character. It is mainly used for grinding, crushing and dispersing materials such as emulsified metal, nonmetal, organic and herb materials. The machine is a preferred equipment for labs.

2. Parameters of MB series

Type	Power supply	Rated power (kw)	Rotating speed of the main roller(rpm)	Max Load weight (kgs)
MB-(1-5)L	220V/50HZ	0.75	50~570	35

3. Types of Ball Mill Jar.

Items	Ball Mill Jar Types For Lab Roll Mill
1	Stainless steel mill jar (201 , 304 , 316)
2	Nylon mill jar
3	PU mill jar
4	PTFE mill jar
5	Corundum Mill Jar

4. Operation Steps

Operating Procedure: Check→ Loading Material and balls→ Installing Jar
→ Turn on Power Supply → Setting Parameters for Frequency Converter
→ Grinding→ Stop Machine→ Unload Jars and Material → Clean Machine

4.1 Check outlook of machine and accessories

Check the attached packing list carefully after opening and make sure that all accessories are completely found, and inspect if the shell of machine is damaged or not in transportation. If any accessory is found short or shell is damaged, please notify our after-sale service department without hesitation. After making sure that all of machine are in good condition, you may connect with power source and test running of machine with empty load.

4.2 Testing machine without load

Connected with power source, panel of frequency converter is lighted. Press “Run” key and machine start to run. Check if indicated speed on the panel is “0”, rotate slowly the button of frequency converter at clockwise counter and adjust the speed to 50% of the maximum rated rotation speed, and keep the machine run for 5 minutes. If no unusual occurs, you may stop machine and go to next step.

4.3 Match ball and load material

In order to get best effects of grinding, small, medium, large-sized balls have to be matched and mixed together at proper rate. Large-sized balls are often used for

weighing and smashing samples as well as dispersing small balls, while small balls are used for mixing and grinding samples. Generally total volume of materials and balls should be less than 2/3 of total volume of jar.

Note: Jar has to be sealed tightly so as to prevent materials from falling out

4.4 Loading Jar

Put Jars which have been loaded with balls and materials onto the rubber rollers one by one, adjust space in average between rubber rollers when using different sized jars.

4.5 Turn on power

Switch on the power and machine is under standby condition.

4.6 Setting Parameters for Frequency Converter

Setting Parameters for Frequency Converter can be shown in "Operation Instruction of Frequency Converter".

4.7 Grinding Materials

After setting parameters of frequency converter, press "RUN" key on the panel, rotate the button of frequency converter and adjust its rotation speed to the rated speed, and then start grinding.

Notes: Instructions of Rotating Speed of MB Series :

1. Rotating speed indicated on the panel is rotating speed of rubber rollers.
2. Actual rotating speed of jar depends on size of jar's diameter at proportion, calculation formula is as follows:

$$Vg=Do/Dg*Vo ; Vo=Vg* Dg/ Do$$

Vg: means actual rotating speed of jar(r/min)

Do: means diameter of rubber roller, diameter of common roller is 60mm.

Dg: means diameter of Jar.

V0: means rotating speed indicated on frequency converter.

3. Examples of calculation of actual rotating speed of jar mill.

Example 1. Use 1L jar for MB-5 to grind material, requested speed Vg of mill jar: 100r/min, How to calculate rotating speed indicated on frequency converter?

- 1) Diameter of 1L jar is measured to be Dg:108mm (Just for reference).
- 2) Diameter of rubber roller is measured to be Do: 60mm
- 3) Calculation Formula:

Rotating speed V0 stated on frequency converter:

$$V0=Vg*Dg/Do=100*108/60=180r/min$$

Example 2. Use MB-5 matched with 2L jar mill to grind material, rotating speed V0 stated on the panel: 200r/min, How to calculate actual rotating speed of mill jar?

- 1) MB-5: Diameter of jar is measured to be Dg:133mm (Just for reference).
- 2) Diameter of rubber roller is measured to be Do: 60mm

3) Calculation Formula

Actual Rotating Speed of Mill Jar: $V_g = D_o / F_g * V_o = 60 / 133 * 200 = 90$ r/min

4.8 Stop Machine

After the machine finishes its working time, button of frequency converter shall be returned to “0”, press “STOP”, the machine shall be stopped.

Notes: After the button of frequency converter shall be returned to “0”, mill jar has been stopped but the machine is still wired with power under standby condition. Do remember to cut off power supply.

4.9 Unload Jar and Materials

Unload the jar from rubber rollers, Pour materials and balls into a sieving plate for separating balls from materials.

4.10 Clean Machine

Clean jars and balls, wipe the machine with rag for next use.

5. Notes of Maintenance & Repair

5.1 Over-load run of equipment is prohibited.

5.2 Motor and converter should be kept dry, ventilated, to prevent short circuit and burnt.

5.3 Check belt regularly if it is loose or aging.

5.4 Lubricate bearings with butter oil regularly.

6. Guarantee

We provide one-year quality guarantee for the equipment. If any question about the machine, please contact after-sale service department or send email to service@jpselecta.es