



Operating Instructions
使用说明书



LED 3D Shaker
LED数控三维摇床
SK208 / Belly Dancer

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Preface

Welcome to the "Operating Instructions of 3D Shaker". Users should read this manual carefully, follow the instructions and procedures, and beware of all the cautions when using this instrument.

Service

When help needed , you can always contact us for technical support. Please provide the customer care representative with the following information:

- Series number (on the rear panel)
- Description of problem (i.e., hardware or software)
- Your contact information

Warranty

You have purchased an original laboratory machine which meets the highest engineering and quality standards. In accordance with our warranty conditions, the warranty period is 24 months from the date of invoice. It shall not apply to any product or parts which have been damaged on account of improper installation, improper connections, misuse, accident or abnormal conditions of operation.

For claims under the warranty please contact your local dealer. You may also send the machine directly to our works, enclosing the delivery invoice and giving reasons for the claim. You will be liable for freight costs.

1. Safety Instructions



Warning!

- Read the operating instructions carefully before use.
- Ensure that only trained staff works with the instrument



Protective ground contact !

- Ensure the socket must be grounded (protective ground contact) before use.
- When working wear personal safety guards to avoid the risk of:
 - Splashing liquids
 - Broken glass containers
 - Body, hair, clothes and jewelry are involved
- Follow the safety instructions, guidelines and accident prevention regulations.
- Do not touch the running parts, prevent the hair and clothes involved. When moving instrument care not rolling your fingers.
- Set up the instrument on a stable, clean, non-slip, dry and fireproof surface. Do not operate the instrument in explosive atmospheres, with hazardous substances or under water.
- When setting speed, please pay attention to the vessels on shaking table to avoid the sample splashing.
If the instrument does not run smoothly, please decrease the motor speed.
- Firmly secure the accessories and vessels in place to avoid damage or risk.

- Processing flammable samples will be dangerous. Only process samples that will not react dangerously.
- Use the standard accessories listed in the “accessories” section, and follow the instructions to use accessories to ensure safety. Please switch off the power before assembly of accessories, confirm the instrument and accessories are intact before switching on each time.
- Only professionals can open the instrument. Please pull out the power plug before opening the instrument.
- The voltage stated on the nameplate must correspond to the mains voltage.
- Do not cover the instrument during running.
- Keep the instrument away from the high magnetic field.

2. Proper Use

The instrument is designed for shaking and mixing liquid in schools, laboratories or factories. It can be installed with a variety of accessories and suitable for kinds of tubes. This instrument is not suitable for using in residential areas or other constraints mentioned in Chapter “ Safety Instructions ” .

Do not use the accessories recommended by the manufacturer, or failure to use the instructions, may be caused unsafe situation.

3. Inspection

3.1 Receiving Inspection

Unpack the instrument carefully and check for any damages which may happen during transport. If any damage happens, please contact us for technical support.



Note:

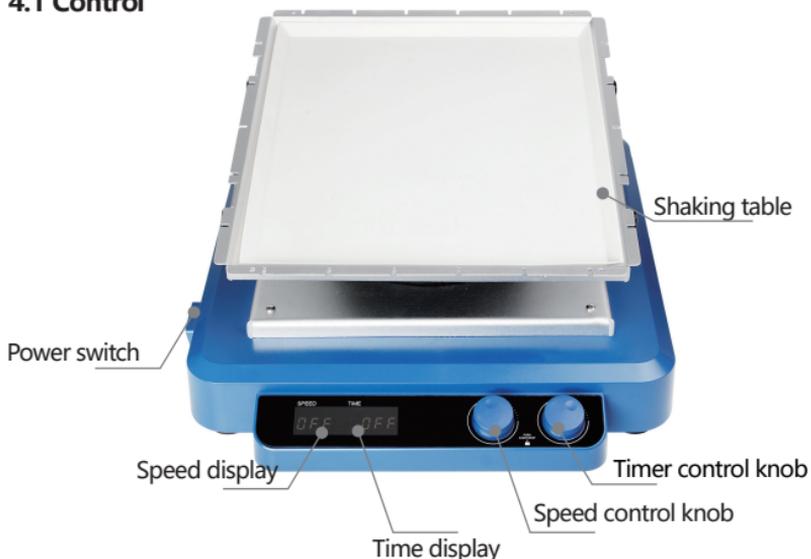
If there is any apparent damage to the system, please do not connect to the power line.

3.2 Listing of Items

Item	Qty.
Main unit	1
Power adapter	1
Non-slip mat	1
Fixed string	6
Operating instruction	1

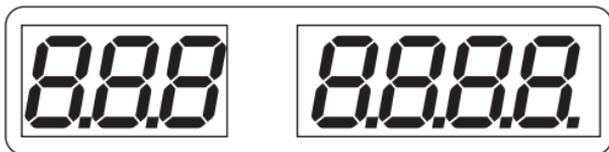
4. Control and Display

4.1 Control



Items	Descriptions
Speed control knob	Set target speed. Push on/off the knob to start/stop the shaking function.
Timer control knob	Set target time. Push on/off the knob to start/stop the timed shaking function.
Speed display	Display the set and real speed values.
Time display	Display the set and remain time values.
Power switch	Switch ON/OFF instrument.

4.2 Display



Display	Descriptions
Er 1	Means motor blocked .
Er 2	Means motor overspeed.
Display area	When the value on display area is flashing, the current display value is setting value; When value stops flashing, the current display value is running value.

5. Operation

- Place the instrument on safe and stable surface, ensure the required operating voltage and power supply voltage matched, and the socket must be earthed reliably.
- Connect the power cable.
- Switch "ON" of the instrument.
- The instrument begins self-checking.
- When initialization is over, LED displays the last running values of speed and time.
- Rotate the speed control knob to set target speed.
- Press the speed control knob to start shaking function without timer. Press the speed control knob again to stop shaking function.
- Press the timer control button to start shaking, and rotate the timer control knob to set target time. Before the countdown time is over, the shaking can be stopped at any time by pressing the speed control knob.

When the timer is closed by pressing the timer control knob, press the timer control knob again, the shaking will start again and the timer will restart countdown. When the timer reaches zero, the unit will be automatically halted and an alert will sound.

If these above operations are normal, the instrument is ready to operate. If not, the instrument may be damaged during transportation, please contact technical support of the manufacturer/supplier.



Note:

1. The speed should be adjusted by speed control knob slowly to make the instrument run smoothly.
2. The speed value can be altered during shaking. The instrument will start to shake with new setting speed value.

6. Faults

- When switched ON, the instrument does not work.
Check whether the power cable is connected.
Check whether the fuse is broken.
- The running speed can't reach to the set value.
Please check whether the load of the shaker exceeds the max. load capacity.

7. Maintenance and Cleaning

- Proper maintenance can keep instrument working properly and lengthen its lifetime.
- Do not spray cleanser into the instrument when cleaning.

- Do not remove the power line when cleaning. Only use recommended cleansers:

Dyes	Isopropyl alcohol
Construction materials	Water containing tenside / Isopropyl alcohol
Cosmetics	Water containing tenside / Isopropyl alcohol
Foodstuffs	Water containing tenside
Fuels	Water containing tenside

- For cleansers not listed, please consult the manufacturer's after-sales service department first.
- Before using other method for cleaning or decontamination, the user must ascertain with the manufacturer that this method will not damage the instrument. Wear the proper protective gloves during cleaning of the instrument.



Note:

- Electronic device cannot be clean with cleanser.
- If maintenance service required, the instrument must be cleaned first to avoid pollution of hazardous substances.
- If the instrument will not use for a long time, please switch it off and place it in a dry, cleans, room temperature and stable location.

8. Associated standards and regulations

Construction in accordance with the following safety standards:

EN 61010-1

UL 3101-1

CAN/CSA C22.2(1010-1)

EN 61010-2-10

Construction in accordance with the following EMC standards:

EN 61326-1

9. Technical Data

Items	Specifications
	3D Shaker SK208
Voltage [VAC]	100-240
Frequency [Hz]	50/60
Power [W]	35
Tile Angel [°]	9°
Max. Load capacity(with platform) [kg]	5
Motor Type	Brushless DC motor
Speed range [rpm]	10-70
Speed display	LED
Timer display	LED
Timer range [min]	1min-99h59min
Run type	Continuous / timing operation
Overall Dimensions [mm]	452x407x195
Weight [kg]	12
Permissible ambient temperature [°C]	5-40
Permissible relative humidity	80%
Protection class acc. to DIN EN60529	IP21

10. Accessories

	Cat. No.	Descriptions
	SK308-2-10	Dish platform with non-slip mat and fixed string(6 pcs)
	MI0103002-101	Universal attachment
	MI0103002-102-1	Fixing clip attachment
	MI0103002-102a	Fixing clip for flask volume 25 ml
	MI0103002-102b	Fixing clip for flask volume 50 ml
	MI0103002-102c	Fixing clip for flask volume 100 ml
	MI0103002-102d	Fixing Clip for flask volume 250ml
	MI0103002-102e	Fixing Clip for flask volume 500ml

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前言

欢迎使用《三维摇床使用说明书》。用户在使用本仪器前应仔细阅读本说明书，了解相关注意事项，并按照说明书中的指导和规范进行操作。

如何获取帮助

如果您在安装和使用的过程中遇到任何问题或需要帮助，请及时与制造商/供货商的售后服务部门取得联系，制造商的联系方法如下

请您准备以下资料：

- 产品序号（在仪器背板上）
- 质保卡
- 问题现象的描述
- 您为了解决问题所采用的方法和操作步骤
- 您的电话、传真和E-mail地址等联络方式

质量保证书

根据制造商的质量保证条款，在本说明书规定的正常使用条件和操作方法下使用该仪器时，该仪器的保修期为24个月（自购买之日起）。由于错误安装与操作、私自拆卸与维修以及其他违反说明书中规定的操作条款造成的仪器性能下降和损坏，不能按照本质量保证进行保修。

如出现质保条款中的相关问题，请联系制造商/供货商。

1. 安全事项



警告!

- 在使用仪器之前请仔细阅读本说明书，并根据以下安全说明进行操作。
- 只有经过专业培训的人员才可以操作本仪器。



安全接地保护!

- 为保证安全，使用本仪器前请确认电源插座接地良好。
- 工作时，请穿戴个人防护工作服装，以避免可能由以下事项引发危险：
 - 振荡液体飞溅
 - 机械振荡力导致玻璃容器破碎
 - 身体、头发、衣服及首饰等被卷入
- 根据安全事项说明和职业安全准则操作仪器，避免意外伤害。
- 不要触碰仪器的运动部件，避免头发、衣服等卷入仪器。搬动仪器时注意不要碾压到手指。
- 请把仪器置于宽敞通风的区域内使用，并确保工作台平稳、洁净、干燥、阻燃且具有一定的摩擦力。请勿在室外，危险物质环境，水中运行本仪器。
- 设置仪器转速时请注意振荡板上放置的容器，避免样品溅出。如果仪器运行不平稳，请调低电机转速。
- 配件必须可靠连接，容器必须稳固放置，避免发生危险。
- 制备易燃样品可能会导致危险。只能制备在振荡过程中不会产生危险反应的样品。
- 请使用“配件”章节中列出的标准配件，并按照本说明书使用

配件以确保安全。在装配附件之前请先切断电源，每次开启仪器之前请确认仪器及其附件未被损坏。

- 只有专业人员才能打开仪器，打开仪器之前请拔出电源插头。
- 铭牌上指定的工作电压必须与电网供电电压相匹配。
- 仪器在使用过程中不要遮盖仪器。防止撞击和挤压仪器及配件。
- 请勿在强磁场区域使用本仪器。

2. 使用范围

本仪器是为学校、实验室和工厂等应用环境设计的，用于对液体进行振荡混匀。本仪器可以安装多种配件，适用多种规格的试管。本仪器不适合在住宅区以及第1章中规定的一些限制条件下应用。

未使用制造商推荐的配件，或者未按使用说明进行操作，可能会出现不安全的情况。

3. 检查

3.1 开箱检查

用户如发现任何包装损伤，请在收据上注明。在打开包装后如果发现任何内部损伤，请联系供货商。



注意：

如发现仪器上有任何明显的损伤，请不要将其连接到电源。

3.2 装箱清单

名称	数量
主机	1台
电源适配器	1个
使用说明书	1本
弹力线	6条
硅胶垫	1个

表 1

4. 控制和显示

4.1 控制

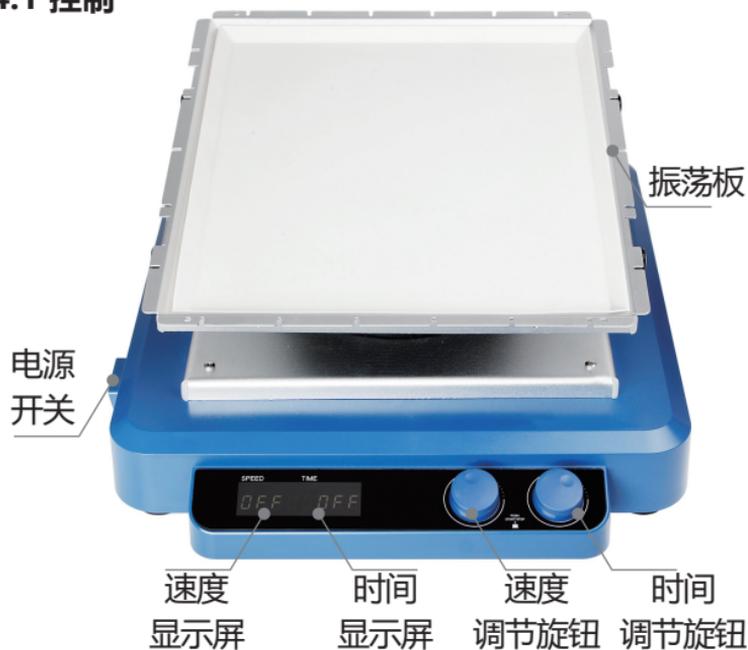


图 1

名称	说明
速度调节按钮	设定电机旋转转速，按下旋钮
	开启/关闭振荡功能。
定时调节按键	设定振荡时间，按下旋钮开启/
	关闭定时的振荡功能。
速度显示屏	显示仪器设置转速及当前转速。
时间显示屏	显示仪器设置定时时间及当前剩余定时时间。
电源开关	打开/关闭仪器主电源。

表 2

4.2 显示

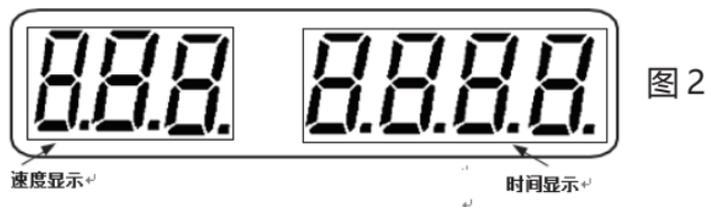


图 2

显示	说明
Er 1	意味着电机堵塞
Er 2	意味着电机超速
显示区	显示区数值闪烁时，表示当时显示数值为设置数值； 显示区数值停止闪烁时，表示当时显示数值为实际数值。

表 3

5. 操作

- 将摇床置于安全平稳处，检查铭牌上指定的工作电压与电网供电电压是否匹配，插座是否接地良好；
 - 接入电源；
 - 打开仪器面板上的电源开关；
 - 开机自检；
 - 等待仪器初始化结束，显示上次关机转速和定时时间；
 - 旋转速度调节按钮，设置振荡转速；
- a** 按动速度调节旋钮，启动无定时时间的振荡操作，再次按动速度调节按钮仪器停止振荡。
- b** 旋转定时调节按钮，设置定时时间，按动定时调节旋钮，启动定时的振荡操作。在定时时间到达之前可以通过按动速度调节旋钮关闭振荡。当按动定时调节旋钮关闭定时功能时，定时功能暂停，再次按动定时调节旋钮启动定时功能时，定时时间延续上次关闭定时功能时的数值。在定时时间到达时，振荡功能自动关闭，同时蜂鸣声响起，提示定时结束。

如果上述操作运行正常，说明仪器可以开始正式使用。如果无法正常运行，仪器可能存在安全设置或者已损坏。请联系制造商/供货商。



注意：

1. 调节振荡速度时须缓慢调节，以使仪器平稳运行。
2. 仪器在运转过程中，转速设置值可以随时更改，更改后仪器将按照新设置值开始振荡。

6. 故障诊断

- 打开电源仪器不启动
请检查电源线是否连接紧密
请检查电源保险管是否损坏或松动
- 转速无法达到设定值
请检查摇床载重是否超过最大承重量

7. 维护和清理

- 正确地使用和维护仪器，使其处于良好的工作状态，有利于延长使用寿命。保持仪器整洁，切勿将溶液流入机内。
- 维护和清理之前必须切断电源，只能使用我们推荐的方法清理仪器。祛除方法：

染料	异丙醇
建筑材料	水溶表面活性剂/异丙醇
化妆品	水溶表面活性剂/异丙醇
食物	水溶表面活性剂
燃料	水溶表面活性剂

- 没有列出的材料，请先咨询制造商售后服务部门。
- 在采用其他清理方法之前，用户必须与制造商/供货商确认该方法不会损坏仪器。
- 清理时，请戴上防护手套。



注意：

- 电子设备不能用清洁剂清理。
- 送修仪器必须清理，同时避免危险物质的污染，并

把仪器放回原始包装箱发送。

- 当产品长期不用时，请将仪器断电存放，并置于干燥，洁净，常温，平稳处。

8. 相关标准

仪器结构符合以下安全标准：

EN 61010-1

UL 3101-1

CAN/CSA C22.2(1010-1)

EN 61010-2-10

仪器结构符合以下电磁兼容标准：

EN 61326-1

9. 技术参数

项目	参数
	三维摇床 Belly Dancer
电压 [VAC]	100-240
频率 [Hz]	50/60
适配器额定输出	24V, 2A
功率 [W]	35
倾斜角度	9°
承载量 [kg]	5
电机类型	无刷直流电机
速度范围 [rpm]	10-70
转速显示	LED
定时显示	LED
时间设置范围 [min]	1min-99h59min
运行方式	定时 / 连续运转
外形尺寸 [mm]	452x407x195
重量 [kg]	12
允许环境温度 [°C]	5-40
允许相对湿度	80%
DIN EN60529保护方式	IP21

10. 订货信息

选配件信息

	产品编号	描述
	MI0103002-101	4滚轴通用夹具
	MI0103002-102-1	锥形瓶夹具底板 组件(与锥形瓶夹 具组装使用)
	MI0103002-102a	25ml锥形瓶夹具 (与锥形瓶夹具底 板组件组装使用)
	MI0103002-102b	50ml锥形瓶夹具 (与锥形瓶夹具底 板组件组装使用)
	MI0103002-102c	100ml锥形瓶夹具 (与锥形瓶夹具底 板组件组装使用)
	MI0103002-102d	250ml锥形瓶夹具 (与锥形瓶夹具底 板组件组装使用)
	MI0103002-102e	500ml锥形瓶夹具 (与锥形瓶夹具底 板组件组装使用)

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