

Operating Instructions

使用说明书



Vortex Mixer
标准旋涡振荡器

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Safety Instructions

For your protection

- **Read the operating instructions in full before starting up and follow the safety instructions.**
 - Keep the operating instructions in a place where they can be accessed by everyone.
 - Ensure that only trained staff work with the appliance.
 - Follow the safety instructions, guidelines, occupational health and safety and accident prevention regulations.
 - Socket must be earthed (protective ground contact).
 - Wear your personal protective equipment in accordance with the hazard category of the media to be processed.
- Otherwise there is a risk from:
- Splashing liquids
 - Projectile parts
 - Body parts ,hair ,clothing and jewellery getting caught.



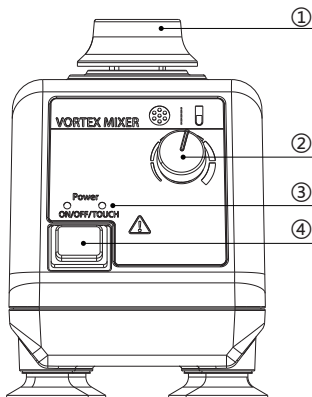
- Keep hand/arm vibration to a minimum (Directive 2002/44/EC)
When operated manually:
 - Keep the sample container as vertical as possible.
 - Only exert the minimum pressure necessary for the mixing process.
 - Use attachments for multiple samples when there is a large number of samples.
- Set up the appliance in a spacious area on an even, stable, clean, non-slip, dry and fireproof surface.
- The feet of the appliance must be clean and undamaged.
- Position the knob at the left stop before starting up.
Gradually Increase the speed.
- If the shaking movement of the appliance increases (resonance), reduce the speed or pass through the critical phase as quickly as possible.

- Reduce the speed if
 - The medium splashes out of the vessel because the speed is too high
 - The appliance is not running smoothly
 - The container moves on the base plate
- Firmly secure the accessories and vessels in place, otherwise shaking vessels could be damaged or projected out.
- Check the appliance and accessories beforehand for damage each time you use them. Do not use damaged components.
- Position one single shaking vessel in the centre and several shaking vessels so that they are evenly spread out.
- The appliance is not suitable for manual operation.
- Sharp edged vessels cause wear debris on the attachments.
- Beware of hazards due to:
 - flammable materials
 - glass breakage as a result of mechanical shaking power.
- Only process media that will not react dangerously to the extra energy produced through processing. This also applies to any extra energy produced in other ways, e.g. through light irradiation.
- Do not operate the appliance in explosive atmospheres, with hazardous substances or under water.
- Safe operation is only guaranteed with the accessories described in the “Accessories” chapter.
- Always disconnect the plug before fitting accessories.
- The appliance starts up again automatically following a cut in the power supply.
- The appliance may heat up when in use.

To the protection of the equipment

- The voltage stated on the nameplate must correspond to the mains voltage.
- Protect the appliance and accessories from bumps and impacts.
- The appliance may only be opened by experts.

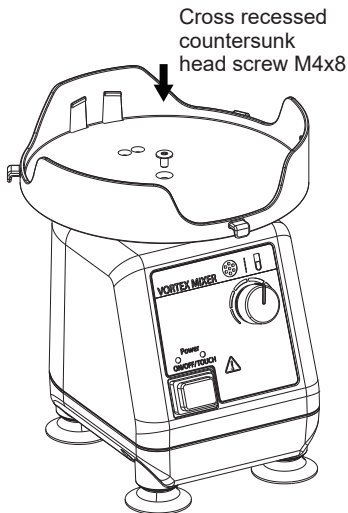
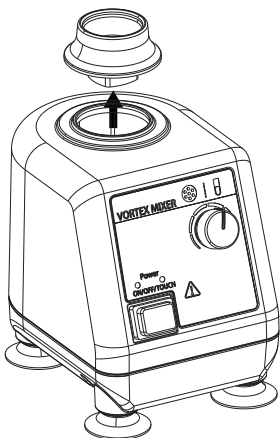
Operator's Control



- ① Adapter
- ② Speed Control Knob
- ③ Mode Indicator Light
- ④ Mode Switch

Item	Description	Function
①	Adapter	The left one is for continuous working mode and the right one is for touch working mode.
②	Speed Setting	It's the continuous mode when the switch is on the left side and the left mode LED is light. It's the touch mode when the switch is on the right side and the right mode LED is light.
③	Mode Indicator Light	Different adapters are used for various mixing applications
④	Mode Switch	To set the speed in the range of 0-3000rpm/min by horizontal rotation of the knob

Changing attachment



Using insert



Unpacking

- Unpacking
 - Please unpack the device carefully
 - In the case of any damage a fact report must be set immediately (post, rail or forwarder)
- Delivery scope
 - Vortex Mixer
 - Plug-in power supply
 - Operating instructions

Correct Use

- Use
 - For mixing liquids
 - Touch mode for single test tubes
 - Continuous mode for single or several vessels
- Range of use
Laboratories / Schools / Pharmacies
- This device is suitable for use in all areas except:
 - Residential areas
 - Areas that are connected directly to low-voltage supply network that also supplies residential areas.

The safety of the user cannot be guaranteed if the appliance is operated with accessories that are not supplied or recommended by the manufacturer or if the appliance is operated improperly contrary to the manufacturer's specifications.

Installation

- Assemble the adapters per the Figure 2 and 3.
- Choose the working mode by the mode switch
- Set the speed by the knob
- Run the mixer by "Run/Stop" in the continuous mode and by pressing the adapter by single test tube in the touch mode.
- Turn off the mixer by putting the mode switch on middle gear.

Maintenance

The appliance is maintenance-free.

Cleaning

Only use cleansing agents which have been recommended by us.

Use to remove

Dyes	isopropyl alcohol
Constructions materials	water containing tenside / isopropyl alcohol
Cosmetics	water containing tenside / isopropyl alcohol
Foodstuffs	water containing tenside
Fuels	water containing tenside

Do not allow moisture to get into the appliance when cleaning.

- Wear protective gloves during cleaning the devices
- Before using another than recommended method for cleaning or decontamination, the user must ascertain with us that this method does not destroy the instrument.
- The rubber of the attachments' pads is a natural product, so talcum can discharge .Clean the rubber pad with glycerin.

Spare parts order

When ordering spare parts, please give:

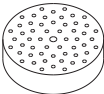
- Machine type
- Manufacturing number, see type plate

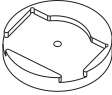
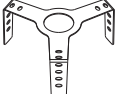
Repair

In case that the device has to be cleaned, please be free from any material which may constitute a health hazard.

If you require services, please return the appliance in its original packing.

Accessories

Item	Part No.	Product Photo	Description
1	MI0101002-31		Test Tube Attachment, 54 x Ø6mm, used with MI0101002-14

Item	Part No.	Product Photo	Description
2	MI0101002-32		Test Tube Attachment, 18 x Ø10mm, used with MI0101002-14
3	MI0101002-33		Test Tube Attachment, 12 x Ø12mm,used with MI0101002-14
4	MI0101002-34		Test Tube Attachment, 8 x Ø16mm,used with MI0101002-14
5	MI0101002-35		Test Tube Attachment, 8 x Ø20mm, used with MI0101002-14
6	MI0101002-36		Microtiter plate attachment, used with MI0101002-14
7	MI0101002-14		Universal top plate
8	MI0101002-13		Standard top < Ø30mm tubes and small vessels
9	MI0101002-37		Erlenmeyer flask attachment 100-250ml, used with MI0101002-14

Application of Accessories

Accessory	Adjustable Speed Model 400-3000rpm			
	Touch Mode		Continuous Mode	
	High Speed	Low Speed	High Speed	Low Speed
MI0101002-13	Y	Y	Y	Y
MI0101002-31+ MI0101002-14		Y		Y
MI0101002-32+ MI0101002-14		Y		Y
MI0101002-33+ MI0101002-14		Y		Y
MI0101002-34+ MI0101002-14		Y		Y
MI0101002-35+ MI0101002-14		Y		Y
MI0101002-36+ MI0101002-14+		Y		Y

The high speed is 3000rpm; the low speed is below 500rpm.

Warranty

In accordance with our warranty conditions, the warranty period is 24 months. For claims under the warranty please contact your local dealer. You may also send the machine directly to our factory, enclosing the delivery invoice and giving reasons for the claim. You will be liable for freight costs.

The warranty does not cover worn out parts, nor does it apply to faults resulting from improper use, insufficient care or maintenance not carried out in accordance with the instructions in this operating manual.

Technical Data

Operation mode	Continuous/touch operation
Type of movement	Orbital
Orbital diameter	6mm
Speed range	0-3000rpm
Permissible ambient temperature	5 - 40 °C
Permissible relative humidity	<80%
Protection class according to DIN EN 60529	IP 21
Voltage	200 - 240 / 115 / 100V compatible
Frequency	50/60 Hz
Power	36W
Motor rating input	30W
Motor rating output	15W
Dimensions (W x H x D)	107x146x166mm
Weight	2.62kg

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请仔细阅读说明书并在说明书的操作指导下安全使用本仪器。
外形和性能指标如有变动，概不另行通知。

前言

欢迎使用《标准旋涡振荡器》。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。

符合性声明

我公司自行负责声明本产品符合

2014/35/EU, 2006/42/EG, 2014/30/EU和 2011/65/EU 指令，

并符合以下标准或标准性文档：

EN 61010-1:2010, EN 61010-2-051:2015, EN 61326-1:2013,

EN 60529:1991 + A1:2000 + A2:2013, EN ISO 12100:2010。

安全说明

- 为了能够安全地使用设备，每个用户必须首先阅读操作说明并遵守其中包含的安全说明注意这些操作说明，并将它们放置在每个人都可以查阅到的地方。
- 请遵守所有相关的安全指示和指示，以及实验室使用的工作安全和事故预防规定。
- 本仪器只适用于混匀物质
- 输入电压必须与仪器铭牌上标示的电压一致。
- 请将仪器放置于干净防滑表面使用。
- 容器注满液体可能使介质飞溅出来，因此必须要使用有盖容器。
- 振荡器只能用于振动不会产生危险反应的材料或材料混合物。
- 请勿将仪器置于危险环境或者水中使用。
- 如果仪器在使用中发生移动现象，请清洁支撑脚和台面。
- 只有使用机器原装选配件才可确保安全。
- 安装配件前请断开电源。
- 使用配件时，必须安装牢固到位，
- 使用任何配件时都须遵守选配件的操作说明。

开箱

- 请小心拆除包装并检查仪器
- 如果发现任何破损，请填写破损报告并立即通知货运公司

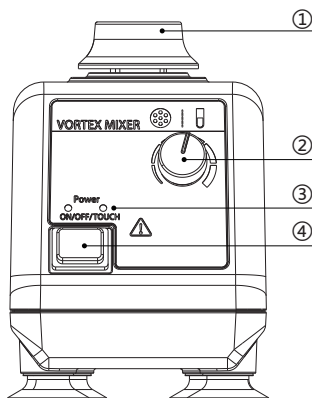


注意：

- 如果设备/适配器有明显损坏，请不要连接电源线。
- 包装清单

名称	数量
主机	1台
电源适配器	1个
使用说明书	1本

操作说明



- ① 硅胶帽
放置容器
点动模式下，用力下按启动
- ② 旋钮
通过旋转设定转速
- ③ 指示灯
左侧LED显示永动模式
右侧LED显示点动模式
- ④ 电源开关
开关左侧档位永动模式
开关中间档位停止
开关右侧档位点动模式

开机运行

- 1.通电：连接电源适配器与机器上自带电源线
- 2.按船型开关左右档位选择点动和永动模式，on/touch灯光会显示工作模式状态
- 3.通过编码器设置转速
- 4.振荡混匀
永动模式：将试管压进硅胶帽中，开始振荡
点动模式：将试管压进硅胶帽中，朝下用力按硅胶模，即可开始振荡

故障排除

- 开机时设备无法工作
 - 检查机器与适配器连线是否接好
 - 检查适配器是否连接接电
- 电机不能转动
 - 点动模式下，需要用力将试管按入硅胶头，触动电动开关
 - 永动模式下，需按下star/stop键

清洁和维护

- 振荡器免维护。它只受制于部件的自然磨损及其统计故障率。只使用我们允许的清洁剂来清洗我们的设备。
- 以下材料需用对应的清洁剂：

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

- 对于没有列出的材料，请向我们索取资料。清洗设备时，请戴上适当的防护手套。不得将电气装置置于清洗剂中进行清洗。在使用另一种建议的方法进行清洁或去污之前，使用者必须向制造商认为这种方法不会破坏仪器。

技术参数

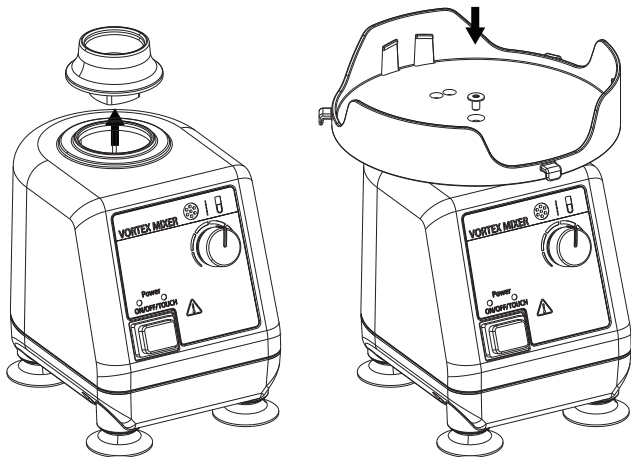
震荡方式	连续操作 / 点动操作
运行模式	圆周
混匀直径[mm]	6
转速范围 [rpm]	0-3000
转速显示	刻度
允许环境温度 [°C]	5-40
DIN EN60529保护等级	IP21
电压[V AC]	220-240/115/100
频率[Hz]	50/60
功率[W]	36
电机输入功率 [W]	30
电机输出功率 [W]	15
外形尺寸[mm]	107*146*166
重量[kg]	3
机身颜色选择	蓝色/灰白

保修

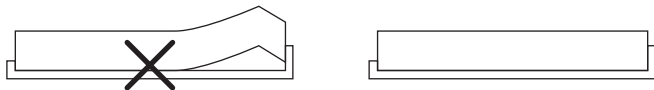
根据本公司保修规定本机保修 2 年。保修期内如果有任何问题请联络您的供货商，您也可以将仪器附发票和故障说明直接发至我们公司，经我方事先确认后运费由贵方承担。保修不包括零件的自然磨损，也不适用于由于过失、不当操作或者未按操作说明书使用和维护引起的损坏。

附件

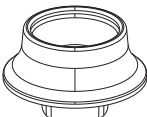
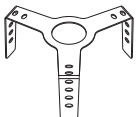
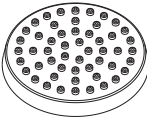
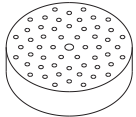
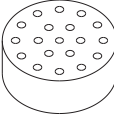
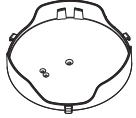
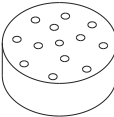
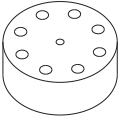
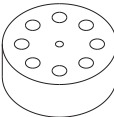
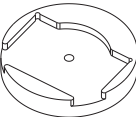
- 更换附件方法
- 更换硅胶帽，换成塑胶托 用KM4*8螺丝固定



- 安装后的效果



• 附件表

图片		图片	
料号	MI0101002-13	料号	MI0101002-37
描述	标准头	描述	锥形瓶适配器 10-250ml 与 MI0101002-14配合使用
图片		图片	
料号	MI0101002-38	料号	MI0101002-31
描述	平板垫片组件 用于直径小于99mm的试管或小容器	描述	试管适配器 54孔 6mm试管 与 MI0101002-14配合使用
图片		图片	
料号	MI0101002-32	料号	MI0101002-14
描述	试管适配器18孔, 10mm与 MI0101002-14配合使用	描述	统一圆头
图片		图片	
料号	MI0101002-33	料号	MI0101002-34
描述	试管适配器12孔, 12mm试管与 MI0101002-14配合使用	描述	试管适配器8孔, 16mm试管与 MI0101002-14配合使用
图片		图片	
料号	MI0101002-35	料号	MI0101002-36
描述	试管适配器8孔, 20mm试管与 MI0101002-14配合使用	描述	酶标板适配器12孔, 12mm试管与 MI0101002-14配合使用

配件搭配使用范围

配 件	转速 400-3000rpm			
	点动模式		永动模式	
	低 速 <500spm	高 速 3000rpm	低 速 <500spm	高 速 3000rpm
MI0101002-13	可以	可以	可以	可以
MI0101002-31+ MI0101002-14	可以	-	可以	-
MI0101002-32+ MI0101002-14	可以	-	可以	-
MI0101002-33+ MI0101002-14	可以	-	可以	-
MI0101002-34+ MI0101002-14	可以	-	可以	-
MI0101002-35+ MI0101002-14	可以	-	可以	-
MI0101002-36+ MI0101002-14+	可以	-	可以	-