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IKA®

C-MAG HS 4 C-MAG HS 7 C-MAG HS 10 **加热磁力搅拌器**

C-MAG MS 4 C-MAG MS 7 C-MAG MS 10 **磁力搅拌器**

C-MAG HP 4 C-MAG HP 7 C-MAG HP 10 **加热板**

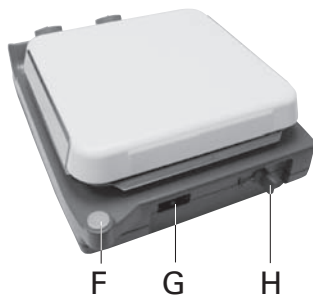
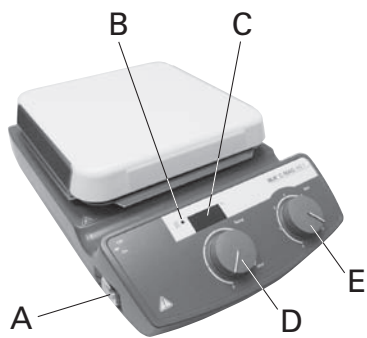


Operating instructions

EN 3

使用说明

CN 9



| Item | Designation |
|------|-----------------------------|
| A | Main Switch |
| B | LED, heating plate |
| C | LED display, heating plate |
| D | Rotary knob, heater |
| E | Rotary knob, motor |
| F | Threaded hole for stand |
| G | Mains socket |
| H | Socket, contact thermometer |

| 序号 | 名称 |
|----|----------|
| A | 开关 |
| B | 加热指示灯 |
| C | 加热温度显示 |
| D | 控温旋钮 |
| E | 调速旋钮 |
| F | 支杆螺孔 |
| G | 电源接口 |
| H | 接触式温度计接口 |

EN

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Safety instructions

To 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).
- **Attention - Magnetism!** Effects of the magnetic field have to be taken into account (e.g. data cardiac, carriers pacemakers...).
- **Risk of burns!** The heating plate temperature can exceed 500 °C. Pay attention to the residual heat after switching off. Please make sure that the mains cable does not contact the heating plate
- Wear your personal protective equipment in accordance with the hazard category of the medium to be processed. Otherwise there is a risk of:
 - splashing liquids
 - projectile parts

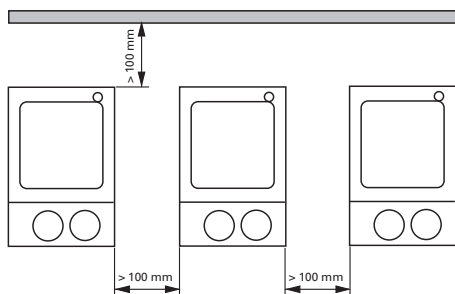
- release any toxic or combustible gases.
- Set up the appliance in a spacious area on an even, stable, clean, non-slip, dry and fireproof surface.
- The feet of the appliance must be clean and undamaged.
- Position the knob at the left stop before starting up. Gradually increase the speed.
- Reduce 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 set-up surface.
- Never heat up any medium with fire point lower (min. 50°C) than the adjusted temperature
- When using PTFE-coated magnetic bars, the following have to be noted: *Chemical reactions of PTFE occur in contact with molten or dissolved alkaline and alkaline - earth metals, as well as with fine-particled powders of metals of the 2. and 3. group of the periodical system at temperatures above 300-400°C. Only elementary fluorine, chlorine trifluoride und alkaline metals do attack PTFE, halogen hydrocarbons have a reversibly swelling effect.*
- Check the appliance and accessories beforehand for damage each time you use them. Do not use damaged components.
- Only replace damaged parts with spare parts identical to the original in function and quality.
- Do not use the device if the ceramic set-up surface is damaged e.g. scratches, splinters or corrosion. A damaged set-up surface could break if used.
- Beware of the risk of
 - flammable materials
 - glass breakage as a result of mechanical shaking power
 - incorrect container size
 - too much medium
 - unsafe condition of container
- 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.



- A separation from the line is made with the equipment only by pulling net and/or device plug.
- Safe operation is only guaranteed with the accessories described in the "Accessories" chapter.
- Always disconnect the plug before fitting accessories.
- Accessories must be securely attached to the device and cannot come off by themselves. The centre of gravity of the assembly must lie within the set-up surface.
- The appliance starts up again automatically following a cut in the power supply.
- The appliance may heat up when in use.
- Abrasion of the dispersion equipment or the rotating accessories can get into the medium you are working on.

To the protection of the equipment

- The voltage stated on the nameplate must correspond to the mains voltage.
- Do not cover the device, even partially e.g. with metallic plates or film. This results in overheating.
- Protect the appliance and accessories from bumps and impacts.
- Observe the minimum distances between devices, between the device and the wall and above the assembly (min. 100 mm).



- Avoid large, sudden changes of temperature. A thermal shock can lead to cracking of the ceramic coating.

Unpack

• Unpack

- Please unpack the device carefully
- In the case of any damage a fact report must be set immediately (post, rail or forwarder)

• Delivery scope

- Heating magnetic stirrer or
Magnetic stirrer or
Heating device
- Mains cable
- Operating instructions



Correct use

• Use

- For mixing and/or heating liquids

• Range of use

- Laboratories - Schools
- Chemical industry - Pharmacies



Commissioning

| | MS 4 | MS 7 | MS 10 | HS 4 | HS 7 | HS 10 | HP 4 | HP 7 | HP 10 |
|---|--|------|-------|------|------|-------|------|------|-------|
| Commissioning | Put device switch (A) in the OFF position | | | | | | | | |
| | Plug in (G) mains cable | | | | | | | | |
| | Once connected to the power supply the device is in "stand-by" mode | | | | | | | | |
| | The right decimal point on the display (C) is lit | | | | | | | | |
| Stirring | Put device switch (A) in the ON position | | | | | | | | |
| | Any set values are retained when device is switched off and even after the device is disconnected from the power! | | | | | | | | |
| | Set the engine speed with the operating button (E) on the right | | | | | | | | |
| Heating | Put device switch (A) in the ON position | | | | | | | | |
| | Any set values are retained when device is switched off and even after the device is disconnected from the power! | | | | | | | | |
| | Set the target temperature for the heating plate using operating button (D) [for VHP (E)] | | | | | | | | |
| | The set value is indicated on the display (C). If energy is being supplied to the heating plate, the red LED (B) lights up | | | | | | | | |
| In the stir and stand-by modes, "hot" flashes on the display after the heat has been switched off for as long as the temperature of the set-up surface exceeds 50°C | | | | | | | | | |
| Contact-thermometer connection | Put device switch (A) in the OFF position, unplug contact plug | | | | | | | | |
| | Safety contact thermometer acc. to DIN 12878 class 2 connected with jack (H) | | | | | | | | |
| | Put device switch (A) in the ON position | | | | | | | | |
| | Beware the instruction manual of the contact thermometer | | | | | | | | |
| Important: Display (C) also indicates the target temperature of the heating plate when the contact thermometer is connected | | | | | | | | | |



Error codes

Footstep during the enterprise a disturbance up, is indicated these with the devices to **HS** and **HP** by an error message in the display (C). Whenever an error message appears switch the device off to cool down.

| Error code | Cause | Solution |
|------------|----------------------------|---|
| E1 | Inner temperature too high | <ul style="list-style-type: none"> switch off the unit and allow it cool down |
| E6 | Motor seized | <ul style="list-style-type: none"> Stirring bars ungeeignet Reduce the viscosity Foreign bodies in the equipment remove |
| E9 | Safety circuit ETC | <ul style="list-style-type: none"> Plug the contact plug (G) Plug the contact thermometer Connecting cable, plug or contact thermometer defect, exchange |

Have the device repaired if the error is not corrected using the measures described or if another error code is displayed.

Accessories

Stirring organs

stirring bars: Ø 6 mm, lengths to 15mm
 Ø 8 mm, lengths to 50mm
 Ø10mm, lengt to 80mm

Any other accessories

RS 1 Set of magnetic stirring bars
 RSE Stirring bar remover
 H16V Support rod
 H16.1 Extension
 H38 Holding rod

H44
ETS-D5

Cross sleeve
Contact thermometer

Installing the support rod

The support rod is attached using the threaded support bore (F).

- Screw nut M10 on to the support rod as far as the stop
- Screw on the support rod as far as the stop by hand
- Tighten the support rod and nut M10 using a flat wrench (SW17).
- Use bossheads to assemble accessory parts or accessory devices.

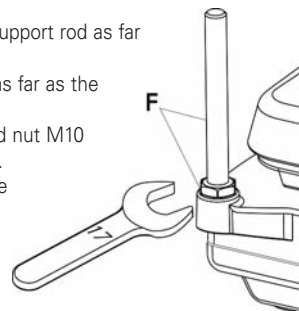
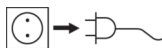


Fig. 3

Maintenance

The appliance is maintenance-free.

Cleaning



Only use cleansing agents which have been recommended by **IKA**.

Use to remove:

| | |
|------------------------|---|
| Dyes | isopropyl alcohol |
| Construction 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 the recommended method for cleaning or decontamination, the user must ascertain with **IKA** that this method does not destroy the instrument.

Spare parts order

When ordering spare parts, please give:

- Machine type
- Manufacturing number, see type plate
- Item and designation of the spare part, see spare parts list and diagram

Repair

In case of repair the device has to be cleaned and free from any materials which may constitute a health hazard.

If you require servicing, return the appliance in its original packaging. Storage packaging is not sufficient. Please also use suitable transport packaging.

Warranty

In accordance with **IKA** warranty conditions, the warranty period is 12 months. If you could fill and post back our questionnaire attached with register card, the guarantee period will be extended to 24 months. For claims under the warranty please contact your local dealer. You may also send the machine direct to our works, enclosing the delivery invoice and giving reasons for the claim. You will be liable for freight costs.

The warranty does not cover wearing parts, nor does it apply to faults resulting from improper use or insufficient care and maintenance contrary to the instructions in this operating manual.



Technical data

| | | MS 4 | HS 4 | HP 4 | MS 7 | HS 7 | HP 7 | MS 10 | HS 10 | HP10 |
|--|-------|-----------------|----------|---------|-----------------|----------|---------|-----------------|----------|---------|
| Operating voltage | VAC | 230 ±10% | | | | | | | | |
| | VAC | 120 ±10% | | | | | | | | |
| | VAC | 100 ±10% | | | | | | | | |
| Nominal voltage | VAC | 230 / 50Hz | | | | | | | | |
| | VAC | 120/ 60 Hz | | | | | | | | |
| | VAC | 100/ 60 Hz | | | | | | | | |
| Design frequency | Hz | 50/60 | | | | | | | | |
| Input power max. at 230 and 120 VAC 100 VAC | W | 30 | 270 | 255 | 30 | 1020 | 1005 | 30 | 1520 | 1505 |
| | | 30 | 270 | 255 | 30 | 1020 | 1005 | 30 | 1070 | 1055 |
| Power consumption in stand-by mode | W | 2.5 | | | | | | | | |
| Perm. duration of operation | % | 100 | | | | | | | | |
| Perm. ambient temperature | °C | +5 to +40 | | | | | | | | |
| Perm. relative humidity | % | 80 | | | | | | | | |
| Protection type acc. to DIN EN 60529 | | IP 21 | | | | | | | | |
| Protection class | | I | | | | | | | | |
| Overvoltage categorie | | II | | | | | | | | |
| Contamination level | | 2 | | | | | | | | |
| Operation at a terrestrial altitude | m | max. 2000 | | | | | | | | |
| Dimensions (W x D x H) | mm | 150 x 260 x 105 | | | 220 x 335 x 105 | | | 300 x 415 x 105 | | |
| Weight | kg | 3 | | | 5 | | | 6 | | |
| Motor | | | | | | | | | | |
| Speed range (infinately) | 1/min | 100-1500 | 100-1500 | - | 100-1500 | 100-1500 | - | 100-1500 | 100-1500 | - |
| Speed display | | Scale | Scale | - | Scale | Scale | - | Scale | Scale | - |
| Power input | W | 15 | 15 | - | 15 | 15 | - | 15 | 15 | - |
| Power output | W | 1,5 | 1,5 | - | 1,5 | 1,5 | - | 1,5 | 1,5 | - |
| Max. stirring quantity (water) | ltr | 5 | 5 | - | 10 | 10 | - | 15 | 15 | - |
| Heating plate | | | | | | | | | | |
| Heating plate dimension | mm | 100x100 | 100x100 | 100x100 | 180x180 | 180x180 | 180x180 | 260x260 | 260x260 | 260x260 |
| Heating power at 230 and 120 VAC at 100 VAC | W | - | 250 | 250 | - | 1000 | 1000 | - | 1500 | 1500 |
| | | - | 250 | 250 | - | 1000 | 1000 | - | 1050 | 1050 |
| Surface temperature min. | C° | - | 50 | 50 | - | 50 | 50 | - | 50 | 50 |
| Surface temperature max. | C° | - | 500 | 500 | - | 500 | 500 | - | 500 | 500 |
| Temperature fluctuation* | C° | - | ±5 | ±5 | - | ±5 | ±5 | - | ±5 | ±5 |
| Limit of safety temperaure | C° | - | 550 | 550 | - | 550 | 550 | - | 550 | 550 |

*On a certain point, without vessel, heating plate centre at 100 °C.



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安全说明

个人防护

- **操作仪器前请认真阅读使用说明并遵守安全操作规范。**
- 请妥善保管使用说明以便需要时查阅。
- 请确保只有受过相关训练的人员才能操作使用本仪器。
- 请遵守安全规范、人身安全和事故防止等相关规范。
- 电源插座必须接地保护。
- **注意-磁场!** 使用时需注意磁场对周边环境的影响, 如数据存储器和心脏起搏器。
- **小心高温!** 仪器工作时盘面温度最高可达500°C, 触摸仪器外壳和盘面时小心烫伤, 仪器关闭后, 也请注意余热。
- 注意避免仪器电源线触及盘面。
- 根据处理介质的种类, 在操作仪器时请佩戴合适的防护设备; 否则可能出现下列危险:
 - 液体溅出
 - 身体、头发、衣物或饰品被飞溅出的物质沾染。
 - 有毒或者易燃气体放出。

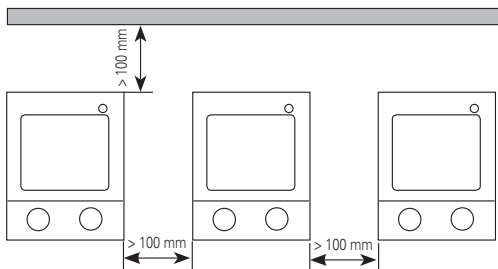
- 将仪器放置于平稳、清洁、防滑、干燥、防火的台面。
- 仪器支脚必须清洁无损。
- 操作仪器前, 请将调速旋钮置于左侧起始位置并逐渐提高仪器转速。
- 出现下列状况时, 请降低转速:
 - 由于转速过高导致所处理的介质溅出容器
 - 仪器运转不平稳
 - 容器在台面上发生移动
- 仪器所加热介质的着火点必须高于设定温度50°C以上。
- 使用PTFE覆膜的磁力搅拌子请注意可能出现下列问题: 温度高于300-400°C时, 碱或碱土金属熔融态或者溶液以及元素周期表的第二族及第三族的粉末会跟PTFE发生化学反应。常温下, 只有金属单质氟、三氟化物和碱金属会侵蚀PTFE, 卤烷烃会使其膨胀。
- 每次使用前请检查仪器和配件并确保无损, 请勿使用损毁的仪器和配件。
- 零部件有损坏时, 请使用原装零配件替换。
- 如果仪器工作盘面损坏, 如划伤、破碎或者被腐蚀, 则不能继续使用, 否则可能导致盘面爆裂。
- 注意以下可能产生的危险:
 - 易燃材料
 - 低沸点可燃物质
 - 易碎玻璃容器
 - 容器大小不合适
 - 溶液过量
 - 容器处于不安全状态
- 请仅使用本仪器处理在搅拌过程中不会因搅拌而产生危险的介质, 也不能处理因其他方式的外部能量(如光照)的增加产生危险的物质。



- 切勿在易爆的环境或水下操作使用本仪器。
- 只有拔下仪器电源插头才能完全切断电源。
- 只有使用“选配件”列表中的配件才可确保安全。
- 安装配件前请断开电源。
- 使用配件时，必须安装牢固，安装完毕，整个系统的重心不能超出系统之外。
- 电源中断重新供电后仪器会自动重启。
- 即使没有开启加热功能，由于磁力搅拌子的高速转动，也有可能導致仪器盘面升温。
- 仪器转动部件的磨损产生的碎片有可能接触到所处理的介质。

仪器设备防护

- 输入电压必须与仪器铭牌上标示的电压一致。
- 使用时，请勿使用外物盖住仪器，否则将会导致仪器过热。
- 确保仪器和配件免受挤压和碰撞。
- 确保仪器放置间距合理，仪器之间、仪器距离四周墙壁以及仪器距离上方至少 100 mm。



- 避免对加热盘面突然急剧降温或者使灼热的盘面接触低温的介质，否则，由于热应力的作用，陶瓷盘面可能破裂！

开箱

• 开箱检查

- 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。

• 交货清单

- 加热磁力搅拌器
或磁力搅拌器
或加热板
- 电源线
- 使用说明书

正确使用

• 使用

- 仪器可用于搅拌/加热液体介质。

• 使用领域

- 实验室 - 学校
- 药剂研究 - 大学

如果操作人员使用非 **IKA** 认可或生产的选配件或者违规操作，我们将不对产生的后果负责。

调试

| | MS 4 | MS 7 | MS 10 | HS 4 | HS 7 | HS 10 | HP 4 | HP 7 | HP 10 |
|-------------|---|------|-------|------|------|-------|------|------|-------|
| 调试 | 将电源开关(A)置于关闭位置 | | | | | | | | |
| | 连接电源线(G) | | | | | | | | |
| | 接通电源, 仪器进入待机模式 | | | | | | | | |
| 搅拌 | 显示屏(C)右端指示灯闪烁 | | | | | | | | |
| | 将电源开关(A)置于开启位置 | | | | | | | | |
| | 仪器关闭甚至断电后任何设定的数值将会被自动保存 | | | | | | | | |
| 加热 | 使用右端调速旋钮(C)设定搅拌转速 | | | | | | | | |
| | 将电源开关(A)置于开启位置 | | | | | | | | |
| | 仪器关闭甚至断电后任何设定的数值将会被自动保存 | | | | | | | | |
| | 使用控温旋钮(D)设定加热盘加热温度 | | | | | | | | |
| | 温度设定值显示在显示屏(C)上, 热量传递至加热板, 红色LED指示灯亮(B)起。 搅拌和待机模式, 加热关闭后, 当工作盘面温度超过50°C, 热警指示灯闪烁一段时间 | | | | | | | | |
| 连接外部 温度计 | 将电源开关(A)置于关闭位置, 拔下温度计接口塞盖并连接温度计 | | | | | | | | |
| | 接触式安全温度计符合DIN 12878等级2标准 | | | | | | | | |
| | 参考接触式电子温度计使用说明 | | | | | | | | |
| | 注: 连接温度计后, 显示屏(C)同时也显示加热盘的设定温度 | | | | | | | | |

错误代码

仪器出现故障时，HS 和 HP 显示屏(C)上显示错误代码，此时，请关闭仪器待其冷却。

| 错误代码 | 故障原因 | 故障排除 |
|------|----------|--|
| E1 | 仪器内部温度过高 | · 关闭仪器待其冷却 |
| E6 | 马达卡住 | · 搅拌子不合适 · 降低介质粘度 · 机内有异物，需去除 |
| E9 | 安全回路故障 | · 插上电源插头(G) · 插上温度计(无温度计请将接口塞盖盖上) · 检查电源线、插头或者温度计连接是否有故障 |

如果上述措施仍不可排除仪器故障或者出现其他错误代码，请将仪器送返检修。

选配件

磁力搅拌子

Ø 6mm，长15mm
Ø 8mm，长50mm
Ø 10mm，长80mm

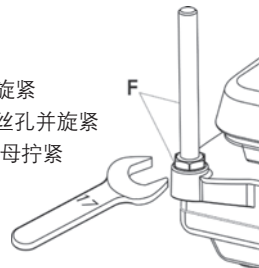
其他选配件

RS 1 搅拌子套装
RSE 搅拌子移出棒
H 16 V 支杆
H 16.1 延长支杆
H 38 固定支杆
H 44 夹头
ETS-D5 接触式温度计

安装支杆

将支杆固定于螺丝孔(F)。

- 将M10螺母安装到支杆上，并旋紧
- 用手将支杆安装到仪器上的螺丝孔并旋紧
- 用扳手(SW17)将支杆和M10螺母拧紧
- 用夹头将其他选配件固定。



清洁维护

本仪器无需特别维护。

清洁



清洁维护仪器时，请断开电源。

清洁时请用 **IKA** 公司认可的清洁液：

| | |
|------|--------------|
| 染料 | 异丙醇 |
| 建筑材料 | 含活性剂的水溶液/异丙醇 |
| 化妆品 | 含活性剂的水溶液/异丙醇 |
| 食品 | 含活性剂的水溶液 |
| 燃油 | 含活性剂的水溶液 |

- 清洁时请确保仪器不要受潮。
- 清洁仪器时请佩戴防护手套。

零配件订购

订购零配件时，请注明：

- 机器型号
- 厂家编码，见机器铭牌
- 零配件名称和编码

详见 www.ika.net 上配件表。

维修

如果需要维修，请清除对人体有害的物质。

发送仪器时，请使用原包装妥善包装，避免运输过程破损。

保修

根据 **IKA** 公司规定本机保修一年 (需提供购机发票)，若填写并寄回保修卡所附客户问券，则保修期可延长至两年。保修期内若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送至我们公司，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。

技术参数

| | | MS 4 | HS 4 | HP 4 | MS 7 | HS 7 | HP 7 | MS 10 | HS 10 | HP 10 |
|--------------------------|-------|-----------------|----------|------|-----------------|----------|------|-----------------|----------|-------|
| 操作电压 | VAC | 230 ± 10% | | | | | | | | |
| | VAC | 120 ± 10% | | | | | | | | |
| | VAC | 100 ± 10% | | | | | | | | |
| 频率 | Hz | 230 / 50Hz | | | | | | | | |
| | Hz | 120 / 60Hz | | | | | | | | |
| | Hz | 100 / 60Hz | | | | | | | | |
| 额定频率 | Hz | 50/60 | | | | | | | | |
| 输入功率-230和120 V 100 V | W | 30 | 270 | 255 | 30 | 1020 | 1005 | 30 | 1520 | 1505 |
| | W | 30 | 270 | 255 | 30 | 1020 | 1005 | 30 | 1070 | 1055 |
| 待机模式下功耗 | W | 2.5 | | | | | | | | |
| 允许最大工作制 | % | 100 | | | | | | | | |
| 允许环境温度 | °C | +5 - +40 | | | | | | | | |
| 允许相对湿度 | % | 80 | | | | | | | | |
| 保护等级 DIN 60529 | | IP 21 | | | | | | | | |
| 保护等级 | | I | | | | | | | | |
| 过压类别 | | II | | | | | | | | |
| 耐污染等级 | | 2 | | | | | | | | |
| 操作海拔 | m | max. 2000 | | | | | | | | |
| 外观尺寸(W x D x H) | mm | 150 x 260 x 105 | | | 220 x 335 x 105 | | | 300 x 415 x 105 | | |
| 重量 | kg | 3 | | | 5 | | | 6 | | |
| 马达 | | | | | | | | | | |
| 转速范围(无级调速) | 1/min | 100-1500 | 100-1500 | - | 100-1500 | 100-1500 | - | 100-1500 | 100-1500 | - |
| 转速显示 | | 刻度 | 刻度 | - | 刻度 | 刻度 | - | 刻度 | 刻度 | - |
| 输入功率 | W | 15 | 15 | - | 15 | 15 | - | 15 | 15 | - |
| 输出功率 | W | 1.5 | 1.5 | - | 1.5 | 1.5 | - | 1.5 | 1.5 | - |
| 最大搅拌量(H ₂ O) | l | 5 | 5 | - | 10 | 10 | - | 15 | 15 | - |
| 工作盘 | | | | | | | | | | |
| 工作盘尺寸 | mm | 100 x 100 | | | 180 x 180 | | | 260 x 260 | | |
| 加热功率-230和120 V -100 V | W | - | 250 | 250 | - | 1000 | 1000 | - | 1500 | 1500 |
| | W | - | 250 | 250 | - | 1000 | 1000 | - | 1050 | 1050 |
| 盘面最低加热温度 | °C | - | 50 | 50 | - | 50 | 50 | - | 50 | 50 |
| 盘面最高加热温度 | °C | - | 500 | 500 | - | 500 | 500 | - | 500 | 500 |
| 温差范围* | °C | - | ± 5 | ± 5 | - | ± 5 | ± 5 | - | ± 5 | ± 5 |
| 安全温度 | °C | - | 550 | 550 | - | 550 | 550 | - | 550 | 550 |

* 对盘面某一点在没有加热容器、盘面中心温度为 100 ° C 时测得。



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