Operating Instructions

Ultra-flat Magnetic Stirrer

MI0102001



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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.
- Caution-Magnetism! Effects of the magnetic field have to be taken in to account (e.g. data storage media, cardiac pacemakers…).
- Wear your personal protective equipment in accordance with the hazard category of the media to be processed. Otherwise there is a risk from:
  - Splashing and evaporation of liquids
  - Ejection of parts
  - Release of toxic or combustible gases



- Use only the AC adapter supplied
- Set up the appliance in a spacious area on an even, stable, clean, non-slip, dry and fireproof surface.
- The base plate must be clean and intact.
- Check the appliance and accessories before hand for damage each time you use them. Do not use damaged components.
- 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

• Beware of hazards due to:
- Flammable materials
- Combustible media with a low boiling temperature
- Incorrect container size
- Overfilling of media
- Unsafe condition of container.

• The appliance may heat up when in use.
• Process pathogenic materials only in closed vessels under a suitable extractor hood. Please contact 4E's if you have questions.
• Do not operate the appliance in explosive atmospheres, with hazardous substances or under water.
• 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.
• Safe operation is only guaranteed with the accessories described in the "Accessories" chapter.
• The centre of gravity of the assembly must lie within the surface on which it is set up.
• The appliance must only be disconnected from the mains supply by pulling out the plug-in power supply unit.
• Abrasion of the dispersion equipment or the rotating accessories can get into the medium you are working on.
• When using the PTFE-coated magnetic bars, the following has to be noted: chemical reactions of PTFE occur in contact with molten or dissolved alkaline and alkaline-earth metals, as well as with fine particle powders of metals of the 2. and 3. group of the

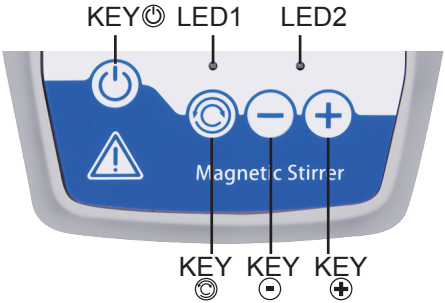
periodical system at temperatures above 300-400°C . Only elementary fluorine, chlorine trifluoride and alkaline metals do attack PTFE, halogen hydrocarbons have a reversible swelling effect.

To the protection of the equipment

Caution: Equipment may not be poured over with aggressive media! Equipment never under water set!

- 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.
- Ensure that the base plate is kept clean.

Operator's Control



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
- Magnetic stirrer
- Plug-in power supply
- Operating instruction

Correct Use

• Use
- For mixing liquids

• Range of use
- Laboratories - Schools - Pharmacies

Installation

• Connect the appliance to a socket (the voltages stated on the nameplates must correspond to the mains voltage).

• Number of revolutions to minimum value set (switch on with ⏻ , with ⊖ reduce number of revolutions to LED 2 permanently shines)

• Place a magnetic rod in a vessel which is penetrable for magnetic field lines and fill the vessel with the medium to be processed.

• Place the vessel on the centre of the set-up surface.

• Set the speed using ⊕ and ⊖ (LED 2 will flash)
To elect the reverse mode and invert the direction of stirring at regular intervals, press the button ◎. In the reverse mode, the stirring direction will be inverted every

50 seconds. The LED 1 will flash when the reverse mode is active. The speed setting and reverse mode selection will remain unchanged when the instrument is unplugged.

Maintenance

The appliance is maintenance-free.

Cleaning

Only use cleansing agents which have been recommended by 4E's

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 4E's that this method does not destroy the instrument.

Accessories

25mm Stirring bar
20mm Stirring bar

Warranty

In accordance with 4E's 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 covers the centrifuge and rotor. It is void in the event of incorrect operation, use of nonstandard spare parts or accessories and unauthorized modification of the rotor or centrifuge. The rotor warranty does not cover normal wear and tear or damage and/or weakening caused by radioactive contamination, cleaning agents, or over tightening of the allen screw.

Technical Data

Plug-in Power Supply Unit	
Rated voltage	VAC 100-240
Rated Frequency	50-60 HZ
Output Voltage	VDC 12
Output Power	min. 3W
Magnetic Stirrer	coil drive
Speed Range	15-1500rpm
Stirred Quantity (max)	500ml (at 1500 rpm with 25mm stirring bar) 800ml (at 1500 rpm with 20mm stirring bar)
Operating time	100%
Protection Class	II
Pollution Degree	2
Overvoltage Category	II
EN 60529 Protection Class	IP 65
Ambient Humidity (Relative)	80%
Ambient Temperature	5 to 40°C (in the operation)
Transport Temperature	-25 to +70°C
Storage Temperature	-10 to +70°C
Material:	Front membrane sheet Polyester
Weight	0.35kg
Installed Weight (max)	2.0kg
Set-up surface	Φ100mm
Dimensions (W x D x H)	115 x 175 x 12mm