

AGITADOR MAGNÉTICO MÚLTIPLE CON CALEFACCIÓN
MULTIPLE MAGNETIC STIRRER WITH HEATING
AGITATEUR MAGNÉTIQUE MULTIPLE AVEC CHAUFFAGE

Ref. | Code | Réf. LBD023 - Mod. RSLab-4PC



Este manual es parte inseparable del aparato por lo que debe estar disponible a todos los usuarios del equipo. Le recomendamos leer atentamente el presente manual y seguir rigurosamente los procedimientos de uso para obtener las máximas prestaciones y una mayor duración del mismo.

This manual should be available for all users of these equipments. To get the best results and a higher duration of this equipment it is advisable to read carefully this manual and follow the processes of use.

Ce manuel est une partie indissociable de l'appareil et doit être mis à la disposition de tous les utilisateurs de l'équipement. Nous vous recommandons de lire attentivement ce manuel et de suivre scrupuleusement les procédures d'utilisation afin d'obtenir des performances maximales et une plus longue durée de vie de l'appareil.

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1. SAFETY NOTES**Symbols and warnings****Warning!**

- Check that the equipment is in good working order before each use
- Ensure that all users are properly informed about the operation of the equipment
- Use the equipment only in accordance with the instructions in this user manual

Caution!

- Do not touch the work plate or parts of the casing during operation, as the temperature of the plate can reach up to 380°C
- Keep the equipment away from explosive or flammable materials

Protective earthing

- Ensure that the power socket has a proper earth connection before using the equipment (protection against electric shock)
- Check that the voltage indicated on the equipment label matches that of the power supply before connecting it

General safety recommendations

- Install the magnetic stirrer with heating plate in a spacious area, on a level, stable, clean, non-slip, dry and fireproof surface
- Ensure that the working environment is free of explosive, hazardous or flammable substances, as well as water
- Before each use, check that the equipment and its accessories are undamaged and correctly secured
- For safety reasons, only use the standard accessories listed in the 'Accessories' section of this manual. Accessories must be securely connected to the equipment to prevent them from coming loose.

- Use appropriate personal protective equipment to prevent risks arising from splashes, evaporation of liquids or release of toxic or flammable gases during operation, especially when:
 - The heated liquid may splash, evaporate or release dangerous gases
 - The heated substances may react when they reach certain temperatures
- Keep the stirrer away from strong magnetic fields
- Set the heating temperature at least 50°C below the ignition point of the chemicals used
- Always use closed containers for stirring pathogenic samples

Conditions of use and maintenance

- Place the external temperature sensor at a minimum distance of 5-10 mm from any surface
- Prevent water or other liquids from meeting the electrical components of the equipment
- Disconnect the power supply before performing any assembly, disassembly, cleaning or maintenance operations
- Do not use this equipment in explosive environments, as it is not explosion-proof

2. GENERAL DESCRIPTION OF THE EQUIPMENT

Scope of application

The equipment is designed for mixing and heating applications in laboratory environments, under the following conditions of use:

- Maximum operating altitude: ≤ 2000 m above sea level
- Permissible ambient temperature: between 5°C and 40°C
- Type of installation: the equipment must only be connected to a power outlet for indoor use
- The power supply voltage fluctuation must not exceed $\pm 10\%$ of the nominal value
- The minimum distance between the instrument, other equipment and the wall must be greater than 100 mm to ensure adequate ventilation

The equipment is not suitable for use in residential areas or in conditions other than those specified above and indicated in the 'Safety Notes'.

Technical parameters

| | |
|---|--------------------------------------|
| Model | RSLAB-4PC |
| Code | LBD023 |
| Stirring/heating positions | 4 |
| Maximum stirring capacity (H₂O) | 40 L (10 L x 4) |
| Plate size | Ø 135 mm |
| Plate material | Stainless steel with ceramic coating |
| Display | LCD |
| Speed range | 200-1500 rpm |
| Speed control accuracy | ± 20 rpm |
| Maximum length of stirring magnet | 40 mm |
| Temperature range | 25-340°C |
| Overtemperature protection | 420°C |
| Temperature control accuracy | ± 1°C (< 100°C), ± 1% (> 100°C) |
| Temperature display accuracy | ± 0.1°C |
| External temperature probe* | PT1000 (accuracy ± 0.2°C) |
| Protection class | IP20 |
| Heating power | 500W x 4 |
| Total power | 515W x 4 |
| Power supply | 200-240V, 50Hz |
| Permissible ambient temperature | 5-40°C |
| Permissible relative humidity | 80 |
| Dimensions (L x W x H) | 698 x 270 x 128 mm |
| Weight | 9.5 kg |

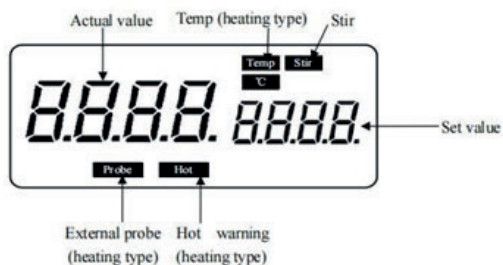
*NOT INCLUDED

Control screen

Control and display elements

| Name | Description |
|--|---|
| Temperature and speed adjustment knob | Allows you to adjust the heating temperature within the range of 25-340°C. Press the knob to activate or deactivate the heating function. Allows you to adjust the stirring speed within the range of 200-1500 rpm. Press the knob to activate or deactivate the stirring function. |
| Stirring / heating adjustment knob | Controls the stirring and heating parameters according to the selected operating mode. |
| LCD display | Displays the current operating status of the equipment and the configured parameters. |
| Mode selector button | Press the button to switch between heating and stirring modes. |
| Power switch | Allows you to turn the equipment on and off. |

Display



| Name | Description |
|---------------------------------|---|
| Stir | Displayed when the stirring function is activated. |
| Temperature ('Temp °C') | Displayed when the heating function is deactivated. |
| Hot | Displayed when the plate temperature exceeds 50°C, regardless of whether the heating function is activated or not. |
| Probe | Displayed when an external temperature probe is connected. |
| Set value / Actual value | The numerical value is displayed when the heating and/or stirring functions are activated, indicating the set value or actual value, depending on the operating mode. |

3. OPERATING INSTRUCTIONS

Inspection upon opening the packaging

Carefully unpack the equipment and check that there is no visible damage caused by transport. The purpose of inspecting the packaging is to verify that all components and accessories are complete and in good condition.

Caution

If the equipment or any of its components show signs of damage, do not connect it to the mains and contact the supplier.

Operation

Heating function

The system has two independent safety circuits to control the temperature of the heating plates. One of these circuits allows continuous temperature monitoring, ensuring safe operation.

- Turn on the switch; the display will show the latest operating parameters
- When the heating function is activated, the actual temperature is shown on the left side of the LCD display and the set temperature on the right side.
- Press the temperature adjustment button to activate or deactivate the heating function.

Installing the external sensor

- Connect the external sensor to the port located on the back of the unit
- Place the external sensor probe inside the container on the heating plate
- The PT1000 temperature sensor used with this product is not included
- When the external sensor is connected, the display shows the 'Probe' indicator, confirming that the sensor has started working
- The heating function will automatically switch off if any abnormal conditions are detected to ensure the safety of the equipment

Stirring function

- The motor, controlled by a closed-loop circuit, rotates the permanent magnet
- Adjust the speed with the control knob to the desired value
- Press the stirring knob to activate the function
- The LCD screen displays the target speed during stirring
- Press the control knob again to deactivate the function

4. CLEANING AND MAINTENANCE

- Proper maintenance ensures correct operation and prolongs the useful life of the equipment
- Keep the equipment on a dry and clean surface
- Do not connect the power supply while the surface is wet
- If the equipment gets wet or any solid or liquid gets inside, immediately disconnect the power supply and contact the supplier for instructions
- Do not spray cleaners directly onto the equipment
- Always unplug the equipment before cleaning and use only cleaning products recommended by the supplier.

Warning

Before performing any maintenance or inspection tasks, always disconnect the power cable from the power outlet.

- For cleaning materials or methods, consult the manufacturer before use. Before applying any cleaning method, the user must confirm that it will not damage the equipment. Always wear suitable protective gloves during cleaning.
- If the equipment is not going to be used for an extended period, store it in a dry, clean, stable place at room temperature.
- If you require further information on equipment maintenance, consult your supplier.

5. ERRORS AND SOLUTIONS

The equipment has been manufactured using advanced production technology and rigorous testing methods. Each unit has undergone extensive testing prior to shipment, ensuring high reliability.

Most common faults occur because of incorrect use of the equipment.

If a fault occurs that cannot be resolved by following the instructions in this manual, contact your supplier.

| Problem | Cause analysis | Solution |
|-------------------------|--|---|
| No display or operation | Incorrect or unstable power cable connection | Check the power cable connection and ensure it is correctly connected |
| | Damaged or incorrectly fitted power fuse | Check the condition of the fuse and replace or reposition it if necessary |
| ERR5 | Temperature exceeds protection limit | Temperature sensor failure or short circuit in the heating element |
| ERR6 | The temperature rises even when the heating is switched off | Short circuit or thyristor failure |
| ERR7 | Temperature does not increase even when the heating is turned on | Heating circuit interrupted or sensor failure |
| ERR8 | Error in motor speed detection | The motor is not working, or the speed detection sensor is faulty |