Klipspringer

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Overhead Stirrer - 20L

USER MANUAL

Product Code: ST1120

The 20-D Overhead Stirrer is a compact, high-performance mechanical stirrer ideal for laboratory applications that require precise and consistent mixing.

Safety Instructions

Icon	Meaning
	✔ Read the instructions carefully before use. ✔ Ensure that only qualified personnel use this instrument. ✔ Do not heat highly flammable or highly volatile substances.
	✔ Be very careful when touching the plastic cover during the heating cycle. Remove the heating blocks ONLY by using the special support rod. The block temperature can reach up to 140°C. ✔ Be careful even when the instrument has been switched off.
	✔ Before use, make sure the instrument is connected to a grounded outlet.

- During work, staff must prevent risks of:
  - ✔ Splashing and / or evaporation of liquids.
  - ✔ Emission of toxic or combustible gases.
- Place the instrument in a suitable area, on a stable, clean, non-slip, dry and fireproof surface.
- Do not use the instrument in explosive atmospheres, containing dangerous substances or under water.
- Gradually increase the stirring speed.
- The set heating temperature must always be at least 25 ° C lower than the combustion temperature of the heated substance used.
- Pay close attention to the risks due to:
  - ✔ Flammable materials or samples with low boiling temperature.
  - ✔ Excessive filling of samples.
  - ✔ Unsafe and / or unsuitable containers for heating.
- Use any pathogenic samples only in closed containers.
- Check that the instrument and accessories are in optimal condition before use. Never use damaged components. Optimal safety and operation are guaranteed only if the instrument and accessories described are in order. The accessories must also be firmly connected to the device.
- The instrument can be disconnected by disconnecting it from the power supply or by disconnecting the cable.
- The operating voltage indicated on the instrument label must correspond to that of the network to which it is connected.
- Make sure that the power cable does not touch the heating plate.
- The tool can only be opened by specialised technicians.
- Keep the instrument away from electromagnetic fields.
- Respect the minimum distance between the device and between the device and the wall (minimum 10 cm).

Assembly of accessories

Attachment of the agitator to the rod

The stand must be mounted according to the instructions below. Adjust the height of the main unit and the distance from the support rod by turning the locking device. The anti-slip protection ring can be positioned at will along the rod.

Installation of the accessory

Insert the accessory shaft into the spindle and adjust the stirring depth of the blade in the container. Turn the spindle with your fingers to fix the blade, and then tighten the spindle by turning the spindle key clockwise and evenly.

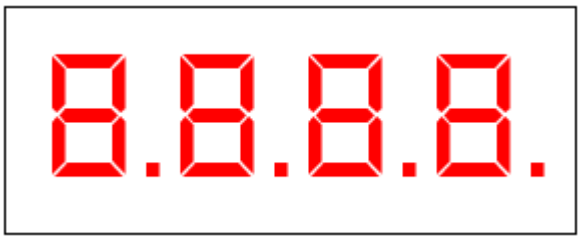
Note:

1. *The rod stirrer is a tool that can work at high speed. Therefore, it is necessary to properly lock the various components, to avoid any accidental movement of the main unit or damage to people or things.*
2. *The support rod is a stirrer support device. The components attached to it must therefore be firmly anchored to it to avoid any accidental movement of the main unit or damage to people or things.*

Controls and lights

Control	Description
Speed knob	Set the desired rotation speed. The stirring function is activated / deactivated by turning the knob.
LCD display	The LCD display shows the actual values and parameters set.
Torque / speed led	The LED turns yellow or green when the motor speed / torque value appears on the display respectively.
Power on / overload led	The LED can take on the colour Green or Red. When the instrument is on and in normal state, the LED is green, while it is red when overload protection is activated. When the torque reaches the limit value, the overload protection function is activated. At the same time, the light protection light flashes and the system stops.
Spindle	For fixing the accessory.
Through hole	Through hole for the passage of the accessory rod.
On / off button	Switches the instrument on and off.

Display



Switching on the instrument

- Place the agitator on a stable surface and connect the power cable.
- Switch on the instrument.
- The instrument starts a short self-diagnosis process.
- When the initialisation is finished, the “set” icon is displayed and at the same time the value setting area flashes to indicate the possibility of setting the speed value.
- Turn the SPEED knob to set the stirring speed.
- Pressing the SPEED knob the LCD display stops flashing and the instrument starts to shake.
- Press the speed knob again, the LCD display flashes and the parameters can be changed again.

Overload protection

The rod agitator operates continuously, therefore in the event that the liquid to be stirred becomes too viscous, i.e. an overload occurs, the motor power is automatically regulated electronically. When the "torque limit" value is reached, the overload protection function is started and at the same time the red LED starts flashing to indicate a small overload. The overload protection comes into play in the following cases:

- When the value of the set speed is not suitable for the current average viscosity;
- When the crankshaft is braked / blocked.

Malfunctions

- The instrument does not start when the stirring function is started.
  - Check that the power cable is connected.
- The speed does not reach the set value.
  - The set speed value is not sufficient for the viscosity level of the stirred liquid.
- The agitation suddenly stops.
  - The overload protection light turns red, the display shows “Er 03”, indicating that the current fault is “overload protection”.
  - The overload protection light turns red, the display area shows “Er 04”, indicating that the current fault is “motor protection”.

Cleaning and Maintenance

- Proper maintenance of the instrument ensures its good condition and extends its life.
- Unplug the power cord during cleaning.
- When cleaning, be careful not to spray detergent inside the instrument.
- Use only non-aggressive cleaning agents that do not contain corrosive substances.
- Before proceeding with cleaning or decontamination, the user must ensure that the method adopted does not damage the instrument.
- Wear appropriate protection when cleaning with chemicals.
- If the instrument has to be sent for technical assistance, it must be properly cleaned and, if necessary, decontaminated from pathogens. The instrument should also be returned for repair inside its original packaging.

Reference Standards

The instrument was built in compliance with the following safety regulations:

EN 61010-1

UL 3101-1

CAN/CSA C22.2(1010-1) EN 61010-2-10

The instrument has been manufactured in compliance with the following EMC standards:

EN 61326-1

European guidelines:

EMC-guidelines: 89/336/EWG

Machine guidelines: 73/023/EWG

Technical features

Feature	Description
Maximum amount of stirring (water)	20 litres
Absorbed power	120 W
Power supplied	100 W
Voltage	100 – 240 V
Frequency	50/60 Hz
Consumption	130 W
Speed range	50 – 2200 rpm
Display type	LCD
Display speed accuracy	±1 rpm
Maximum torque	60 Ncm
Overload protection	Flashing led, auto stop
Motor protection	Flashing led, auto stop
Maximum viscosity	50000 mPas
Spindle diameter range	0.5 – 13 mm
Dimensions (L x W x H)	220 x 186 x 83 mm
Weight	2.8 kg
Protection class DIN / EN60529	IP42
Working temperature	5 – 40 °C
Permissible relative humidity	80%
RS232 interface	Yes

Disposal of electronic equipment

Electrical and electronic equipment marked with this symbol cannot be disposed of in public landfills. In accordance with EU directive 2002/96 / EC, European users of electrical and electronic equipment have the option of returning the used equipment to the Distributor or Manufacturer when purchasing a new one. Abusive disposal of electrical and electronic equipment is punished with a pecuniary administrative sanction.