



elmi Ltd.
laboratory equipment

Shaker DOS-20S



User's manual



ISO 13485


Dear users!

DOS-20S shaker is a simple and reliable device. We ask you to consider a technical requirement for exploitation to provide the use of the equipment without problems for a long period of time.

General information

DOS-20S is designed to perform the mixing up of components in different kind of test tubes, laboratory dishes with flat bottom, flasks, Petri dishes, etc. The control panel of the device contains indicators of the speed and time of rotation of the platform. This device is fully controlled by the microprocessor system with memory, independent from the source of energy. When the shaker is not used for more than 15 minutes it automatically goes to the "SLEEP" mode and turns off.

Technical specifications

Size of working space of platform:	168 x 168 mm
Amplitude of platform rotation:	20 mm
Type of rotation:	orbital
Time controller:	from 1 min to 9 hours and the "HOLD" mode
Speed of rotation RPM:	from 20 to 300
Environmental temperature, °C	From +10 to + 45
Relative moisture of atmosphere (at the temperature of 20 °C)	no more than 80 %
Voltage and frequency	100-240V; 50-60Hz
The recommended pulley block: 	DC in 24V 1 A
Power (at maximum speed):	no more than 24 W
Size of the device (length x width x height) mm	205x170x70
Weight, kg	1.6

Delivery package

Item	Quantity
Shaker	1
Power supply	1
Magnetic clips	3
User manual	1
Packaging	1

Certificate of approval

Shaker DOS-20S N_____ has been inspected for the technical conditions and it meets all regulations necessary for such class of device.

Quality control person _____
(name) (signature)

Date of manufacture _____

Place for stamp.

Certificate of sale

Organization _____

Address _____

Phone _____

Vendor _____
(name) (signature)

Date of sale _____

Manufacturer's address.
21-133 Aizkraukles Str., Riga LV-1006
Tel: (+371) 6755 8743
Tel: (+371) 6755 1934
E-mail: info@elmi-tech.com
WWW: www.elmi-tech.com

Disinfection and cleaning

Before you start disinfection or cleaning make sure the power adapter is unplugged. It is recommended to perform cleaning with water and universal washing liquids. Afterwards the machine should be carefully dried.

Warranty statements

- Warranty applies to 24-month period from the date of purchasing.
 - Malfunctions arisen through the fault of manufacturer in this period, are removed free of charge.
 - Guaranty is not valid in the following cases:
 - If the serial number label of the manufacturer is damaged.
 - If damages appear as a result of the incorrect operation, transportation or storage.
 - These documents are necessary if applying for warranty repair:
 - User manual with serial number of the machine.
 - Officially signed report, describing the reasons and conditions of equipment malfunction.
 - **Warranty repair could be performed only if the equipment is delivered in the original manufacturers packaging or equally safe packaging.** Therefore, please keep the transportation packaging after unpacking the device.
 - If the above warranty requirements are disturbed, repair charges are applied to the consumer.
- For all further questions concerning exploitation and maintenance please Contact manufacturer or product vendor.

Transportation and storage

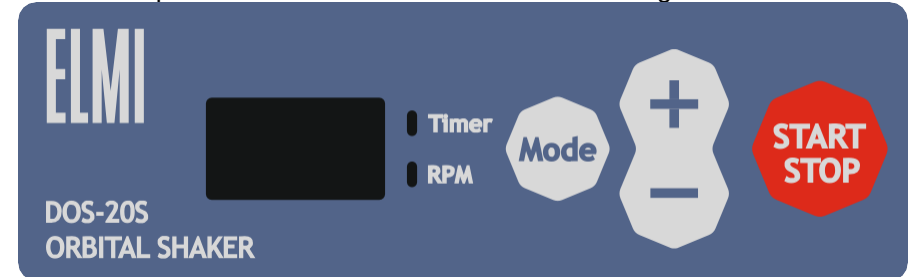
To ensure safety during the transportation, transported equipment should be packed in the original manufacturers' packaging or similar packaging substitute.

Equipment can be transported by any kind of closed transport so that equipment is tightly fixed, and transportation runs accordingly to regulations applied to this way of transport. Equipment should be stored in original manufacturers packaging in dry room with humidity not more than 80% and temperature range from +10 °C up to +45 °C.

It is not recommended to store the equipment more than 36 month.

Controls description

The control panel of the shaker consists of the following elements:



Indicators RPM, TIME show what parameter is currently displayed.

- **Timer** Timer - Current time settings and SLEEP mode indication.
- **RPM** RPM - Platform rotation speed.
- **Mode** Switching between RPM and TIME parameters.
- **+/-** Increase / decrease RPM or TIME parameter.
- **START STOP** Start / stop operation.

Setting regimes of operation

The operation regime is set by adjusting two parameters:

RPM - Platform rotation speed.

TIME – Platform rotation time, timer turn off.

Choose the desired parameter buy pressing mode button. The light indicator will show which parameter is selected.

Set the desired parameter value.

If the time parameter is less than 1 minute, the timer automatically switches off and the display will show OFF message.

Launch the operation with start / stop button. If you wish to end the operation before the estimated time runs out press the start / stop button again.

All the TIME and RPM parameter settings are stored in the power independent memory.

Unpacking and setting up

Before turning the machine on, please take a look at the adapter. Ensure that the wire and the body of adapter are not damaged. In case of external damage of the adapter, do not plug it in the machine without the supervision of specialist!

- 1) Plug the adapter into the outlet. The indicators on the control panel will turn on.
- 2) Set up the desired operation regime: rotation time and speed.
- 3) Press the start button. The platform will start to move. When the desired time will run out, the shaker stops and gives the sound signal.
- 4) During rotation on the display time counts down in minutes and when the last minute is left the shaker starts the countdown in seconds.
- 5) When the shaker is operating the time parameters cannot be changed. By pressing the control buttons shortly, the indicators will show the set time period.
- 6) The rotation speed can be changed during the rotation of platform by pressing the control buttons.
- 7) The shaker automatically protects itself from the overloading. If during the operation the platform is overloaded or there is an other obstacle, the platform halts and attempts to start again until the obstacle is removed.
- 8) The shaker has a power consumption "SLEEP" mode. The shaker enters sleep mode if it is not operated and the user does not press any button for more than 15 minutes. By pressing any button machine goes back to normal mode.
- 9) The machine is plugged into the power socket and it is not necessary to pull out the adapter from the outlet. But if the machine is not used for a long period of time it is recommended to unplug the adapter.

Safety features

It is prohibited to:

- Plug the device to a power outlet configuration different from the power adapters' plug configuration.
- Plug the power adapter in to the outlet if the adapter is damaged.
- Work with aggressive media while the flask is not closed tight.
- Move the device while working.

