

# Bio RS-24 Mini-Rotator





# Contents

1.	Safety Precautions .....	4
2.	General Information .....	5
3.	Getting started.....	6
4.	Operation .....	7
5.	Specifications .....	8
6.	Maintenance.....	9
7.	Warranty and Claims.....	10
8.	EU Declaration of Conformity.....	11

# 1. Safety Precautions

The following symbols mean:



## **Caution!**

Make sure you have fully read and understood the present Manual before using the equipment. Please pay special attention to sections marked by this symbol.

## GENERAL SAFETY

- Save the unit from shocks or falling.
- Store and transport the unit in a horizontal position (see package label).
- After transportation or storage, keep the unit under room temperature for 2-3 hrs before connecting it to the mains.
- Before using any cleaning or decontamination methods except those recommended by the manufacturer, check with the manufacturer that the proposed method will not damage the equipment.
- Do not make modifications in design of the unit.

## ELECTRICAL SAFETY

- Connect only to external power supply with voltage corresponding to that on the serial number label.
- Use only the external power supply provided with this product.
- Ensure that the external power supply is easily accessible during use.
- Disconnect the unit from the mains before moving.
- Turn off the unit by disconnecting the external power supply from the power socket.
- If liquid penetrates into the unit, disconnect it from the external power supply and have it checked by a repair and maintenance technician.
- Do not operate the unit in premises where condensation can form. Operating conditions of the unit are defined in the Specifications section.

## DURING OPERATION

- Do not operate the unit in environments with aggressive or explosive chemical mixtures. Please contact manufacturer for possible operation of the unit in specific atmospheres.
- Do not operate the unit if it is faulty or has been installed incorrectly.
- Do not use outside laboratory rooms.
- Do not place a load exceeding the maximum load value mentioned in the Specifications section of this Manual.

## BIOLOGICAL SAFETY

- It is the user's responsibility to carry out appropriate decontamination if hazardous material is spilt on or penetrates into the equipment.

## 2. General Information

Mini-rotator Bio RS-24 provides vertical rotation of the platform. The rotator is an ideal instrument for preventing blood coagulation in tubes and for fulfilment of procedures of biological components extraction.

The device is simple to operate; it is designed as a low cost solution.

Rotator can be used in cold rooms or incubators, operating at ambient temperature range +4°C to +40°C.

- **PRS** platforms have universal rubber clamps for different size tube fixation;
- **PRSC** platforms have metal clamps able to hold heavier solutions (e.g. soil, sand)

### 3. Getting started

#### 3.1. Unpacking.

Remove packing materials carefully and retain them for future shipment or storage of the unit.

Examine the unit carefully for any damage incurred during transit. The warranty does not cover in-transit damage.

Warranty covers only the units transported in the original package.

#### 3.2. Complete set. Package contents:

##### Standard set

- Bio RS-24 mini-rotator ..... 1 piece
- PRS-22 platform ❶ ..... 1 piece
- External power supply ..... 1 piece
- Operating Manual; Certificate ..... 1 copy

##### Optional accessories

- PRS-4/12 platform ❷ .....on request
- PRS-18 platform ❸ .....on request



❶



❷



❸

#### 3.3. Setup:

- place the unit on the horizontal even working surface;
- plug the external power supply into the 12 V socket at the rear side of the unit.

#### 3.4. Platform replacement:

- Unscrew the two fixing screws on the platform.
- Replace the platform and install the new platform securing it with the screws.
- Fix the screw tightly.

## 4. Operation

### Recommendation during operation

- Arrange the tubes symmetrically in relation to the rotation axis when loading.

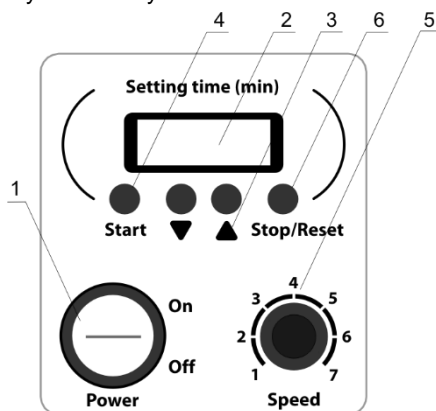


Fig. 1. Control panel

- 4.1. Connect the external power supply to the electric circuit.
- 4.2. Place samples on the platform: microtubes - up to the end; vacutainers and tubes with caps - half way.
- 4.3. Switch on the **Power** switch (fig. 1/1). Display with timer lights up (fig. 1/2).
- 4.4. Using the ▼ and ▲ keys (fig. 1/3), set necessary working time. Use timer indication as a guide. The set time is displayed in hours and minutes (hh:mm).
- 4.5. Set the required rotation speed (recommended by the methodological prescriptions) using the **Speed** knob (fig. 1/5).
- 4.6. Press the **Start** key (fig. 1/4). The platform starts rotating and the timer starts counting the set time interval. Time interval less than 1 hour is displayed in minutes and seconds (mm:ss), more than 1 hour – in hours and minutes (hh:mm).
- 4.7. After the set time interval expires, the platform rotation stops and the set time interval appears on the display.
- 4.8. Press the **Start** key to repeat the operation with the same working time and speed.
- 4.9. The mini-rotator can be stopped before the set time expires if necessary by pressing the **Stop/Reset** key (fig. 1/6). For 20 s timer indicator will show the time rotator has worked, after that - the set time interval.
- 4.10. Press and hold the **Stop/Reset** key for longer than 3 s to reset the time interval.
- 4.11. If the working time is not set (or is reset) and the indicator shows 0.00, pressing the **Start** key starts continuous operation of the rotator until the **Stop/Reset** key is pressed.
- 4.12. Switch off the device using the **Power** switch after finishing the operation.
- 4.13. Disconnect the external power supply from the electric circuit.

## 5. Specifications

The unit is designed for operation in cold rooms, incubators (excluding CO<sub>2</sub> incubators) and closed laboratory rooms at ambient temperature from +4°C to +40°C in a non-condensing atmosphere and maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.

- 5.1. Speed control range ..... 5-30 rpm
- 5.2. Vertical rotation movement..... 360°
- 5.3. Time setting range ..... 1 min – 23 h 59 min / non-stop (increment 1 min)
- 5.4. Maximum continuous operation time.....8 hours
- 5.5. Maximum load.....375 g
- 5.6. Maximum volume ..... 285 ml
- 5.7. Dimensions ..... 325x190x155 mm
- 5.8. Input current/power consumption ..... 12 V, 110 mA / 1.3 W
- 5.9. External power supply ..... input AC 100-240 V 50/60Hz, output DC 12V
- 5.10. Weight\*..... 1.4 kg

Optional platforms	Capacity	Tubes		Catalogue number
		Volume, ml	Diameter, mm	
PRS-4/12**	4/12	50/1.5-15	20-30/ 10-16	BS-010117-AK
PRSC-18**	18	15	10-16	BS-010117-EK

Replacement platform	Capacity	Tubes		Catalogue number
		Volume, ml	Diameter, mm	
PRS-22**	22	1.5-15	10-16	BS-010117-FK

Biosan is committed to a continuous programme of improvement and reserves the right to alter design and specifications of the equipment without additional notice.

\* Accurate within ±10%.

\*\* PRS platforms are equipped with universal rubber clamps for different size tube fixation; PRSC platforms have metal clamps able to hold heavier solutions (e.g. soil, sand).



## 6. Maintenance

- 6.1. If the unit requires maintenance, disconnect the unit from the mains and contact Biosan or your local Biosan representative.
- 6.2. All maintenance and repair operations must be performed only by qualified and specially trained personnel.
- 6.3. Standard ethanol (75%) or other cleaning agents recommended for cleaning of laboratory equipment can be used for cleaning and decontamination of the unit.

## 7. Warranty and Claims

- 7.1. The Manufacturer guarantees the compliance of the unit with the requirements of Specifications, provided the Customer follows the operation, storage and transportation instructions.
- 7.2. The warranted service life of the unit from the date of its delivery to the Customer is 24 months. Contact your local distributor to check availability of extended warranty.
- 7.3. Warranty covers only the units transported in the original package.
- 7.4. If any manufacturing defects are discovered by the Customer, an unsatisfactory equipment claim shall be compiled, certified and sent to the local distributor address. Please visit [www.biosan.lv](http://www.biosan.lv), Technical support section to obtain the claim form.
- 7.5. The following information will be required in the event that warranty or post-warranty service comes necessary. Complete the table below and retain for your records.

Model	Bio RS-24, mini-rotator
Serial number	
Date of sale	

## 8. EU Declaration of Conformity

# EU Declaration of Conformity

<b>Unit type</b>	Rockers, shakers, rotators, vortexes
<b>Models</b>	<b>MR-1, MR-12; 3D, Multi Bio 3D, PSU-10i, PSU-20i, MPS-1, PSU-2T; Bio RS-24, Multi Bio RS-24, Multi RS-60; V-1 plus, V-32, MSV-3500</b>
<b>Serial number</b>	14 digits styled XXXXXYYMMZZZZ, where XXXXXX is model code, YY and MM – year and month of production, ZZZZ – unit number.
<b>Manufacturer</b>	SIA BIOSAN Latvia, LV-1067, Riga, Ratsupites str. 7/2
<b>Applicable Directives</b>	EMC Directive 2014/30/EC LVD Directive 2014/35/EC RoHS2 2011/65/EC WEEE 2012/19/EU
<b>Applicable Standards</b>	<u>LVS EN 61326-1: 2013</u> Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements. <u>LVS EN 61010-1: 2011</u> Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements. <u>LVS EN 61010-2-051: 2015</u> Particular requirements for laboratory equipment for mixing and stirring.

We declare that this product conforms to the requirements of the above Directives

  
\_\_\_\_\_  
Signature  
Svetlana Bankovska  
Managing director

19.07.2016.  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Signature  
Aleksandr Shevchik  
Engineer of R&D

19.07.2016  
\_\_\_\_\_  
Date

# HOW TO CHOOSE

## A PROPER SHAKER, ROCKER, VORTEX

**biosan**

Medical-Biological  
Research & Technologies

**Sample volume**  
**10<sup>3</sup> ... 10<sup>2</sup> ml**

Erlenmeyer flasks and  
Cultivation flasks



**Sample volume**  
**10<sup>1</sup> ml**

Petri dishes, vacutainers  
and tubes up to 50 ml



**Sample volume**  
**10<sup>0</sup> ... 10<sup>-3</sup> ml**

PCR plates, microtest plates  
and Eppendorf type tubes



PSU-20i, Orbital Shaker

ES-20/60, Orbital  
Shaker-Incubator



Applications:  
Microbiology  
Extraction  
Cell cultivation

PSU-10i,  
Orbital Shaker



ES-20, Orbital  
Shaker-Incubator



MR-12,  
Rocker-Shaker

Applications:  
Agglutination  
Gel staining/  
destaining

Multi Bio 3D, Mini Shaker

Applications:  
Agglutination  
Extraction  
Blot hybridisation  
Gel staining/destaining



Multi RS-60,  
Programmable rotator

Bio RS-24,  
Mini-Rotator



**NEW**

RTS-1 and RTS-1C,  
Personal bioreactors



MR-1,  
Mini Rocker-Shaker



Multi Bio RS-24,  
Programmable  
rotator

Applications:  
Microbiology  
Extraction  
Cell cultivation  
Hematology



V-1 plus,  
Vortex

MSV-3500,  
Multi Speed Vortex

Applications:  
Nucleic acid Analysis  
Molecular Analysis  
Protein Analysis  
Genomic Analysis



PST-60HL-4,  
Thermo-Shaker



PST-60HL,  
Thermo-Shaker



MPS-1,  
Multi Plate Shaker



CVP-2, Centrifuge  
vortex for PCR  
plates



V-32, Multi-Vortex



PST-100HL,  
Thermo-Shaker

TS-DW, Thermo-Shaker  
for deep well plates



**NEW**

Applications:  
ELISA Analysis  
Genomic Analysis  
Hybridization  
Immunology



PSU-2T,  
Mini-Shaker



**NEW**

TS-100, TS-100C, Thermo-Shakers

