Medical–Biological
Research & Technologies

Microspin FV-2400

Mini-Centrifuge/Vortex

Operating Manual
Certificate

for versions:
V.1AA
V.1AC
V.1BC
V.1BA

Contents

1. Safety Precautions

The following symbol means:

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

- Use only as specified in the Operating Manual provided.
- The unit should be saved from shocks or falling.
- After transportation or storage keep the unit under room temperature for 2-3hrs before connecting it to the electric circuit.
- Use only cleaning and decontamination methods recommended by the manufacturer.
- Do not make modifications to the design of the unit.

ELECTRICAL SAFETY

- Connect only to electric circuit with voltage corresponding to that on the serial number label.
- Ensure that the plug is easily accessible during use.
- Do not plug the unit into an ungrounded power socket, and do not use an ungrounded extension lead.
- Disconnect the unit from the electric circuit before moving.
- Switch the unit off and disconnect the power cord plug from the power socket to turn off the unit.
- If liquid penetrates into the unit, disconnect it from the electric circuit 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 touch the rotor or tubes during work, run-up or run-down of the rotor, except operation with vortex head.
- 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.

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

Microspin FV-2400, Mini-Centrifuge/Vortex is specially designed for the genetic engineering researches, especially for PCR-diagnostics experiments, ecological monitoring researches and industrial biotechnology laboratories.

Microspin FV-2400 provides the simultaneous mixing and separation of samples, using centrifuge and mixing modules, disposed on the common spin module.

The device was invented and for the first time described (published) by Biol. Dr. V.Bankovskis in 1989 and after the successful approbation and improvement was patented in 1994 (V.K.Bankovskis et al., Riga, Latvia, Pat. No. P94-74).

The device is applicable in all the areas of the medicine, biotechnology and microbiology laboratory research.

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.

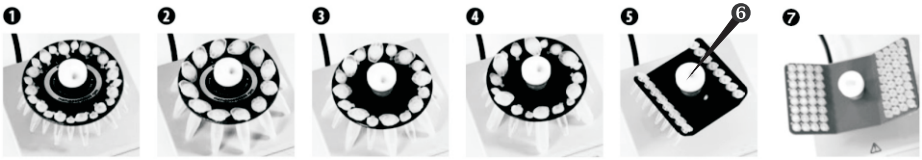
3.2. Complete set. Package contents:

Standard set:

- Microspin FV-2400, Mini-Centrifuge/Vortex .....1 piece
- **R-0.5/0.2M** rotor for 12 x 0.5 +12 x 0.2 ml microtubes ❶ .....1 piece
- **R-1.5M** rotor for 12 x 1.5 ml microtubes ❷ .....1 piece
- spare fuse .....1 piece
- vortex head with 2 mm eccentric ❻ .....1 piece
- Operating Manual; Certificate .....1 copy

Optional accessories:

- **R-2/0.5** rotor ❸.....on request
- **R-2/0.5/0.2** rotor ❹.....on request
- **SR-16** rotor ❺ .....on request
- **SR-64** rotor ❼ .....on request



3.3. Set up:

- place the unit on horizontally even working surface;
- position the unit so that there is easy access to the plug.
- according to EN 61010-2-20 people and hazardous materials must not be within a 300 mm area around the device during the centrifuge operation.

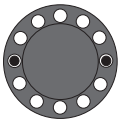
3.4. Rotor replacement:

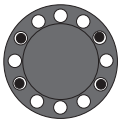
Unit is provided with the fixation mechanism for all the types of the above-mentioned rotors; operator can easily change rotor for the desired type of tubes in 3-5 s. To change a rotor, (fig.1/3) hold it with one hand and turn the vortex head (fig.1/4) counterclockwise to set rotor free. Change the rotor and turn in the vortex head back.

4. Operation of Microspin

Recommendation during operation

Check the rotor for any signs of wear and replace if necessary. Insert EVEN number of tubes in rotor one opposite another. The opposite tubes must be filled equally.


2 TUBE ARRANGEMENT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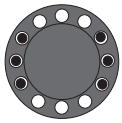
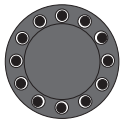

6 TUBE ARRANGEMENT


FULL ARRANGEMENT

4.1. Plug the unit to a properly grounded power socket.

4.2. **Centrifugation mode.** Place EVEN number of tubes to the rotor sockets opposite one another. Turn the **QUICK SPIN** switch (Fig.1/1) into the position **I** (ON). Press the **QUICK SPIN** button (Fig. 1/2) for the quick mixing/ sedimentation and hold button pressed for the desired time. After releasing the **QUICK SPIN** button the unit will stop automatically. Turn the **QUICK SPIN** switch (Fig.1/1) into the position **O** (OFF).

4.3. **Vortexing mode.** Turn the **QUICK SPIN** switch (Fig.1/1) into the position **I** (ON). Gently holding upper part of the tube with fingers press tube's lower part to the vortex head conic cavity bottom (Fig.1/4). Press the **QUICK SPIN** button and hold it pressed till the full sediment dissolution.

Caution! Remember that the angle of hydrodynamic shift as well as the force of tubes pressing to the vortex head are decisive factors of sediment dissolution effectiveness.

To avoid fast erosion of vortex head and plastic tube surfaces do not press tubes to the vortex head too strong. Turn the **QUICK SPIN** switch (Fig.1/1) into the position **O** (OFF).

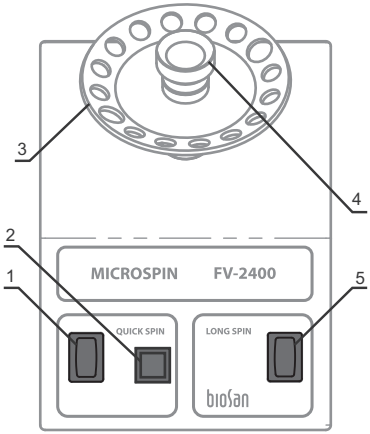


Fig. 1 Front panel

4.4. **Long sedimentation mode (longer than 1 min).** The mode is used for blood and eucariotics cells sedimentation (including micro-organism cells), dissolving of hardly soluble components or salts dense sediments in analytical researches, etc.

Turn the **QUICK SPIN** switch (Fig.1/1) into the position **I** (ON). Place EVEN number of tubes to the rotor (Fig. 1/3) sockets opposite one another. Turn the **LONG SPIN** switch (Fig.1/5) into the position **I** (ON) to start sedimentation. Turn the **LONG SPIN** switch (Fig.1/5) into the position **O** (OFF) to stop sedimentation. Turn the **QUICK SPIN** switch (Fig.1/1) into the position **O** (OFF).

4.5. Unplug the unit from the power socket after finishing the operation.

5. Specifications

The unit is designed for operation in cold rooms, 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. Rotation speed (constant) .....2800 rpm (50 Hz); 3500 rpm (60 Hz)
2600 rpm (50 Hz) or 3250 rpm (60 Hz) with rotor SR-64 equipped

5.2. Acceleration time .....5 s

5.3. Continuous operation time .....60 min

5.4. Dimensions .....120x170x120 mm

5.5. Operating voltage/ Power consumption .....230 V; 50 Hz; 30 W (0.13 A),
230 V; 60 Hz; 25 W (0.1 A)
or 120 V; 50/60 Hz; 30 W (0.27 A)

6.6. Weight* .....1.4 kg

* Accurate within ±10%.

Optional accessories	Description	Catalogue number
R-2/0.5 rotor	for 8 x 2.0 ml + 8 x 0.5 ml microtubes	BS-010205-CK
R-2/0.5/0.2 rotor	for 6 x 2.0 ml + 6 x 0.5 ml + 6 x 0.2 ml microtubes	BS-010205-DK
SR-16 rotor	for 2 strips of 8 x 0.2 ml sockets or microtubes	BS-010202-AK
SR-64 rotor	for 8 strips of 8 x 0.2 ml sockets or microtubes	BS-010201-EK

Replacement parts	Description	Catalogue number
R-1.5M rotor	for 12 x 1.5 ml microtubes	BS-010201-AK
R-0.5/0.2Mr rotor	for 12 x 0.5 ml + 12 x 0.2 ml microtubes	BS-010201-BK
Vortex head	Vortex head with 2 mm eccentric	BS-010201-S04

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

6. Maintenance

6.1. If the unit requires maintenance, disconnect the unit from the electric circuit 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 disinfection of the unit.

6.4. **Fuse replacement.**

Disconnect the device from electric circuit. Open the fuse holder located on rear side of the device by turning its cover counterclockwise. Replace with the correct fuse, F 250 mA for 230 V or F 500 mA for 120 V (type **F** - time lag: **F**ast).

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. 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, Technical support section to obtain the claim form.

7.4. 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	Microspin FV-2400, Mini-Centrifuge/Vortex
Serial number	
Date of sale	

8. Declaration of Conformity

Declaration of Conformity

Equipment name:	**FV-2400 Microspin**
Type of equipment:	Mini-Centrifuge/Vortex
Directive:	EMC Directive 2004/108/EC Low Voltage Directive 2006/95/EC RoHS 2011/65/EC WEEE 2002/96/EC & 2012/19/EU
Manufacturer:	SIA BIOSAN Ratsupites 7, build.2, Riga, LV-1067, Latvia
Applied Standards:	**EN 61326-1:** Electrical equipment for measurement, control and laboratory use EMC requirements. General requirements **EN 61010-1:** Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements **EN 61010-2-20:** Particular requirements for laboratory centrifuges

We declare that this product conforms to the requirements of the above Directive(s)

Signature

Svetlana Bankovska
Managing director

12.06.2013
Date

Signature

Aleksandr Shevchik
Engineer of R&D

12.06.2013
Date

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