Grant-bio

# High-speed Mini-centrifuge

# Microspin 12

*Operating instructions*

# Contents

# 1. Safety

The following symbols mean:

**Caution!** Read these operating instructions fully before use and pay particular attention to sections containing this symbol.

GENERAL SAFETY

- Use only as specified in the operating instructions provided.
- The unit should be saved from shocks or drops.
- After transport or storage allow the unit to dry out (2-3 hrs) before connecting to the mains.
- Before using any cleaning or decontamination method except those recommended by the manufacturer, check with the manufacturer that the proposed method will not damage the equipment.
- Do not make modifications to the design of the unit.

ELECTRICAL SAFETY

- Connect only to the mains with a voltage corresponding to that on the serial number label. Use only the external power supply unit provided with this product.
- Ensure that the mains switch and external power supply are easily accessible during use.
- Do not plug the unit into the mains outlet without grounding, and do not use extension lead without grounding.
- Before moving the unit, disconnect it from the mains outlet.
- To turn off the unit, disconnect the external power supply from the mains outlet.
- If liquid is spilt inside the unit, disconnect it from the external power supply and have it checked by a competent person.

DURING OPERATION

- Do not operate the unit without rotor protection lid.
- Do not operate the unit in environments with aggressive or explosive chemical mixtures.
- Do not use rotor or adapters with visible signs of corrosion, wear or mechanical damage.

- ☞ Do not operate the unit if it is faulty or been incorrectly installed.
- ☞ For indoor use only.
- ☞ Do not use outside laboratory rooms.
- ☞ Ensure that no persons and/or dangerous materials are located within a safety zone of 300 mm around the equipment when the centrifuge is running.
- ☞ Do not centrifuge flammable or chemically vigorously reactive materials.
- ☞ Do not fill in the tubes after they are inserted in the rotor.
- ☞ Centrifuge rotor must not be filled over the capacity specified by the manufacturer (see p. Specifications).
- ☞ Use only original accessories (rotors, adapters, etc.) provided by the manufacturer.
- ☞ Rotor must always be fixed securely. Stop the operation immediately with the Run Stop button if any unusual noise occurs during acceleration which can be due to improper rotor fixation.

BIOLOGICAL SAFETY

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

# 2. General Information

High-speed Mini-centrifuge, Microspin 12 is nice example of a good quality instrument for components separation, which can be used for extracting RNA/DNA samples, separation of cell suspensions and for the others micro quantitative analyses.

Microspin 12 has a spherical shape (bioform) and its compact footprint requires limited space on the laboratory bench. Centrifuge has a single, aluminum fixed rotor which spins up to 14500 RPM, it is approximately 12400 x g. The rotor can accommodate up to 12 x 2ml (or smaller) microtubes (such as Eppendorf, Axygen & et cetera). Adapters for 0.5 ml and 0.2 ml microtubes are included as standard set.

Microspin 12 is equipped with an efficient fan system which provides constant air cooling for the rotor to reduce the risk of sample overheating during operation. There is only a slight sample temperature elevation during longer centrifugation periods (e.g. 10ºC after 20 min. at maximal rotation speed).

Rotor is equipped with protection lid, also the rotor can be removed and autoclaved.
This is extremely useful as it provides additional protection against RNase degradation during RNA isolation procedures.

Microprocessor control provides precise control of the set/actual parameters and user-friendly interface with straightforward set-up. LCD display indicates two rows of set/actual values:
- centrifugation time;
- centrifugation speed;
- relative g-force.

Brushless motor provides quiet vibration free performance even at high speeds and long product service life. Metal protective inserts and enclosures inside the body and lid of the centrifuge as well as automatic disbalance switch-off and lid locking mechanism provide safe operation throughout the speed range. Sound signal indicates when centrifugation is completed.

Thanks to low voltage external power supply Microspin 12 can be safely used in cold rooms (from +4ºC till 15 ºC). These are reasons, that we can recommend Microspin 12 for any molecular biomedical laboratory.

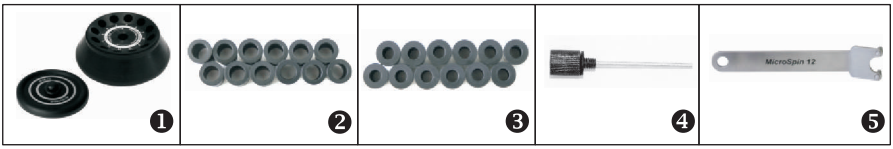
# 3. Getting started

### 3.1. Unpacking

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

### 3.2. Complete set. The standard set includes:

- High-speed Mini-centrifuge, Microspin 12.....1 pce.
- Rotor MSR-12 with lid ❶ .....1 pce.
- Adapters A-05 for 0,5 ml ❷.....12 pce.
- Adapters A-02 for 0,2 ml ❸.....12 pce.
- Pin for unblocking the lid ❹ .....1 pce.
- Wrench for rotor removing ❺ .....1 pce.
- External power supply .....1 pce.
- Operating Instructions; Declaration of Conformity.....1 pce.




### 3.3. Set up:

- place the centrifuge on even stable surface;
- connect the power cord to the external power supply.
- plug external power supply into the socket on the rear, and position the centrifuge so that there is easy access to the power switch and connector;
- It is necessary to observe the safety area of 300 mm around the centrifuge in accordance with EN-61010-2-2. Persons and hazardous materials must not be located in the safety area whilst the centrifuge is in operation.
- do not place any objects in front of the ventilation slots underneath and 100 mm behind the centrifuge.

### 3.4. Rotor and adapters installation:

- connect the external power supply to the mains outlet. Switch ON the power switch on the rear.

- press the **Open** key (fig.1/1) and open the outer lid lifting it upwards with a hand.
- unscrew a fixation nut anti-clockwise with the help of wrench included in standart set and remove it.
- place the rotor, then fixation nut. Secure the rotor tightly turning the fixation nut clockwise.
- insert adapters in the rotor sockets if it is necessary.
- place the rotor lid on the rotor pressing the lid holder down. Close the outer lid.
- turn OFF the centrifuge with switch on the rear.

# 4. Operation

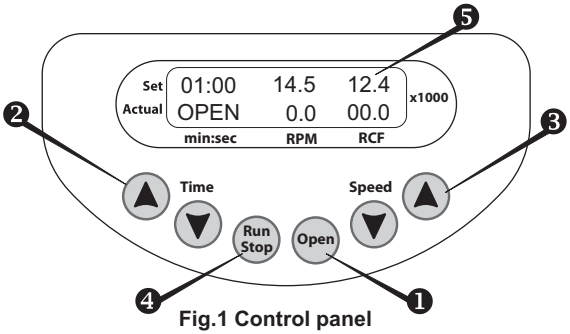



**Fig.1 Control panel**

**Recommendations during operation**

When loading use even number of tubes arranged symmetrically (facing one another) to give the unit even balance during operation. The opposite tubes must be filled up equally.

- Recommended time interval between operation sessions:
  for 15 min operation session – 10 min,
  for 30 min operation session – 15 min.

4.1. Check the external power supply for any signs of damage and replace if necessary. Connect the external power supply to the mains outlet. Switch ON the power switch on the rear.

4.2. The centrifuge turns on and the display shows the following readouts:

- previously set time and speed and relative g-force, accordingly the set speed in the upper line (*set*);
- mode indication (STOP - lid closed, rotor stopped) and current speed - 0 RPM and correspond g-force in the lower line (*actual*).

4.3. Press the **Open** key (fig.1/❶) and open the outer lid lifting it upwards with a hand (see fig.1 - the display shows OPEN). It is possible to open the lid only when the rotor is stopped.

4.4. Remove the rotor lid lifting the lid holder up.

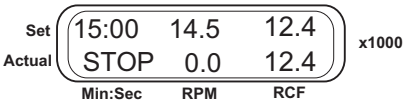



**Fig.2 Control panel in stop mode**

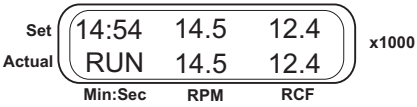



**Fig.3 Control panel in run mode**

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

4.6. Place the rotor lid on the rotor pressing the lid holder down. Close the outer lid (the clicking sound of the lock and readings STOP in the lower line of the display indicate that the lid is closed, see fig.2).

4.7. With the "▲" and "▼" **Time** keys (fig. 1/❷) set the required time interval.

4.8. With the "▲" and "▼" **Speed** keys (fig. 1/❸) set the required speed or required g-force, using the g-force readings (fig.1/❺). These parameters can also be adjusted during operation.

**Note!** Some plastic tubes can be damaged at higher speeds. Refer to the tube material specifications to make sure that it will not get damaged at the set speed.

4.9. Press **Run Stop** key (fig. 1/❹) to start centrifugation. Blinking indication RUN and current speed is displayed in the lower line (fig.3). The timer in the upper line starts countdown after the set speed is achieved (stable indication RUN).

**Note!** If the rotor imbalance occurs causing vibration the centrifuge stops automatically (indication IMBALANCE). After the rotor is stopped open the lid and remedy the cause of imbalance.

4.10. Centrifugation is stopped automatically after the set time elapses (while braking display shows blinking indication STOP(fig.2). A sound signal is emitted after full stop of the rotor.

4.11. If necessary centrifugation can be stopped before the set time elapses by pressing **Run Stop** key. The set time interval will be shown on the display.

4.12. At the end of operation turn OFF the centrifuge with switch on the rear. Disconnect the external power supply from the mains outlet.

⚠ **Note!** The electrical lid lock allows opening the lid only when the unit is connected to the mains and is turned on. Do not force the lid to open when the unit is switched off!

***Emergency opening***

- Disconnect the power cord from the mains outlet.
- Allow the centrifugation to stop.
- Unscrew the pin for unblocking the lid situated on the rear.
- Insert the pin into the emergency opening slot and press until the lid opens.
- Find the emergency opening slot on the right side of the unit.

# 5. Specifications

- Rotor imbalance automatic diagnostics emergency stop, indication “IMBALANCE”
- Speed control range .....1000 -14500 RPM
- Speed setting resolution .....100 RPM
- Relative g-force control range .....50 - 12400 x g
- Digital time setting .....1 - 30 min
- Time setting resolution .....1 min
- Acceleration time up to14500 rpm .....20 sec
- Slowdown time, not more.....10 sec
- Display.....LCD
- Standard MSR-12 rotor capacity .....for 12 x 1.5/2 ml tubes
- Max. loading on rotor.....36 g
- Dimensions ..... 200x240x125 mm
- Input current/power consumption.....24V, 2,5 A / 60W
- External power supply..... input AC 100-240 V 50/60Hz, output DC 24V
- Weight, not more .....3,5 kg
- Operating conditions
  The product is designed for operation indoors in a laboratory at altitudes up to 2000 m, with ambient temperature from +4°C to +40°C and maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.

| Replacement parts | Description |
|---|---|
| A-05 | Adapter for 12x0.5 ml microtubes |
| A-02 | Adapter for 12x0.2 ml microtubes |

Grant is committed to a continuous programme of improvement, specifications may be changed without notice.

# 6. Guarantee and service

**6.1. Guarantee**

When used in laboratory conditions and according to these working instructions, this product is guaranteed for TWO YEARS against faulty materials or workmanship.

**6.2. Service & Maintenance**

There are no user-serviceable parts inside the unit. For all maintenance and repairs return to our service department in the UK or in other countries,our distributor.

**6.3. Cleaning & Disinfection**

Cleaning liquids that do not contain concentrate organic solvents, alkali or acid can be used for device cleaning.

For rotor cleaning it is necessary to do the following operations:

- if the centrifuge is switched on, press the **Open** key (fig.1/1) and open the outer lid lifting it upwards with a hand.
- if the centrifuge is switched off the mains, find the emergency opening slot on the right side of the unit. Insert a small pin (included in standart set) into the emergency opening slot and press until the lid opens.
- remove the rotor lid lifting the lid holder up.
- hold the rotor with one hand and turn a fixation nut anti-clockwise to release the rotor with the help of wrench included in standart set.
- release the rotor and clean it;
- The rotor [without the rotor lid] is autoclavable (120°C, 20 min).
  *Note!* Due to frequent autoclaving the rotor label can be damaged or unstuck. If necessary, a new label can be requested from the manufacturer or your local distributor.
- after cleaning install the rotor, secure it carefully turning the rotor fixation nut tightly.
- place the rotor lid on the rotor pressing the lid holder down. Close the outer lid.

Standard ethanol (75%) can be used for disinfection. It is recommended to perform disinfection after operation session by cleaning the parts inside the centrifuge chamber.

# Declaration of Conformity

| | |
|---|---|
| Manufacturer: | BIOSAN LTD.<br>Ratsupites 7, build.2, Riga, LV-1067, Latvia |
| Equipment name/type number: | Microspin 12 |
| Description of Equipment: | High-speed Mini-centrifuge |
| Directive: | EMC Directive 2004/108/EC<br>Low Voltage Directive 2006/95/EC |

| | |
|---|---|
| Applied Standards | |
| Harmonized Standards: | **EN 61326-1:**<br>Electrical equipment for measurement, Control and laboratory use - EMC requirements<br>General requirements<br><br>**EN 61010-1:**<br>Safety requirements for electrical equipment for measurement, control and laboratory use.<br>General requirements<br><br>**EN 61010-2-020:**<br>Particular requirements for laboratory centrifuges. |

I declare that this apparatus conforms to the requirements of the above Directive(s)

Dated 14. 06. 2012

Svetlana Bankovska
Executive Director
Biosan Ltd.

# Notes

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