
Operating Manual

SeroSpin II

Clinical Centrifuge

Date of Purchase	
Serial No.	
Place of purchase	



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hanil

SeroSpin II

Medical Device

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Contact Us



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The contents in this operating manual are subject to change for device improvement.

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1. General Considerations

1.1 Safety

Follow precautions and all the safety requirements described on this user manual to prevent any damage and failure of equipment and loss of lives.

1. The centrifuge should be installed on flat surface to maintain level.
2. Check the voltage to be used, before connecting the centrifuge to the power source.
3. Only use rotors, parts, and accessories provided by Hanil Scientific Inc. Hanil Scientific Inc. is not responsible for damages of the device and accidents caused by using parts and accessories not recommended.
4. Do not exceed the maximum rated speed of the rotor or buckets in use.
5. Make sure to prepare necessary safety measures before using samples that are toxic or radioactive samples or pathogenic or samples or infectious blood.
6. Substances that may generate volatile or explosive vapor can not be centrifuged.
7. The balancing work of samples should done in advance before operation.
8. To ensure safe use of the device, do not expose the device to strong acids, strong bases, cesium, salt, or alkaline detergents.
8. If the centrifuge is contaminated by toxic or radioactive samples or infectious blood samples, remove contaminants completely and take needful actions such as ventilation or isolation of centrifuge.
9. Before operation, rotor and chamber should be dry.
10. Do not attempt to slow or stop the spinning rotor by hand.
11. Only centrifuge with rotor and rotor lid firmly tightened.
12. Do not block vents.
13. When serving the centrifuge, be sure to remove contaminants in advance.
14. Please contact the place of purchase or Hanil Scientific Inc. for product repairs.
15. According to IEC61010-2-020 maintain a 30cm "clearance envelope" around the centrifuge while the rotor is spinning.
16. Turn the power switch off after using the device.
17. Unplug the power plug before cleaning or left unused for a long period of time.

1. General Considerations

1.2 Transport & Storage



- The device and the accessories may only be stored in dry rooms

-Storage-

Ambient temperature 5°C~40°C

Maximum relative humidity 30%~85%

Air pressure 500~1060hpa



- Only lift and transport the device with sufficient number of helpers.

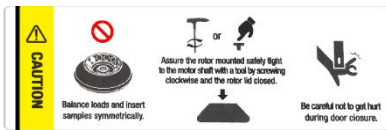
-Transport-

Ambient temperature -10°C~40°C

Maximum relative humidity 10%~90%

Air pressure 500~1060hpa

1.3 Safety label attached to a product



Load tubes symmetrically.

Firmly tighten the rotor lid.

Watch your fingers when close the lid.



Mark indicating danger and warning.



Mark indicating a place in danger of electric shock.



Mark indicating earth-grounding

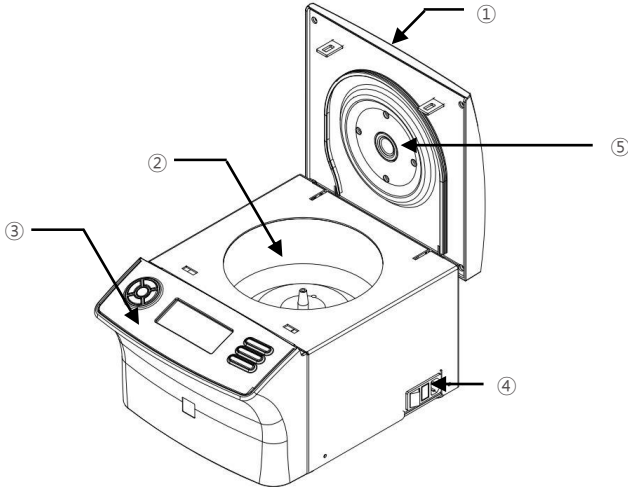
1.4 Electric safety information

1. It is recommended that switchgear or circuit breakers and overcurrent protection devices be installed near the equipment.
2. Use a power cord only provided with equipment.
3. Use sockets with a protective earth conductor and suitable power cord.
4. Do not use an extension cord.
5. Do not place anything on the power cable
6. Do not block vents.
7. If you have the following emergencies, shut off the power supply and unplug the power cord from outlet and contact your place of purchase.

- Unusual noises or smell from the equipment.
- Damage or wear of a power cord.
- Breakdown of circuit breaker, fuse or safety device.
- If you spill liquid on the equipment.
- If the equipment has been damaged.

2. Product description

2.1 Structure



- ① Door
- ② Chamber
- ③ Display&Control panel
- ④ Power switch
- ⑤ RPM measuring window

2.2 Delivery package

- ① SeroSpin II Main body(incl. a rotor)
- ② Power Cable
- ③ Operating manual

2. Product description

2.3 Technical Specifications

Max. RPM	3,400 rpm
Max. RCF	1,118 xg
Max. Capacity	12 x 75 mm tube
ACC/DEC ramps	5/6 steps
Time control	< 100 min, pulse, continuous
Program memory	10
Noise level	≤ 60 dB
Imbalance cutoff	Yes
Dimension (W x D x H, mm)	293 x 380 x 242
Weight without rotor	15 kg
Power requirement	200 VA
Power input (V, Hz)	210V~240V, 50/60 Hz (110V optional)
Cat. No.	SE-II

3. Installation

3.1 Packing Inspection



- Check packing conditions carefully, before unpacking.
- Contact Hanil Scientific Inc. immediately if damages found.
- Check the delivery for completeness.

- You can get contact details on packing boxes and the back of the manual.

3.2 Installation

3.2.1 Selecting the location

Installation on hard and flat ground.

- Centrifuge should be installed on hard and flat place.
- If the centrifuge is installed in an inclined place, the shaft may be bent due to the weight of the rotor.

Goodventilation.

- For air circulation and safety, maintain a 30cm “clearance envelope” around the centrifuge while the rotor is spinning.

Constant temperature/humidity

- Centrifuge equipped with the sensitive electronic software which is fragile with humidity and temperature.
- Must avoid direct ray or heater and be put in the ambience of controlled temp. and air.

Avoid the corrosive gas

- Install the centrifuge in a place where corrosive gas is not generated.
- Sulfur dioxide gas and chlorine gas may cause corrosion.

Leveling

- The shaft should be put exactly vertical on the horizontally flat ground by the leveling tool

3. Installation

3.2 Installation

3.2.2 Power Connection



- Connect the device to voltage sources which correspond to the electrical requirements on the label attached to the device.
- Use sockets with a protective earth conductor and provided powercord.

1. Connect the power cable to the power socket on the right side of the product and plug the cord into the outlet.
2. Switch the centrifuge on using the power switch on the right side of the device.

3.3 Loading and removal of the rotor



- Only use rotors, parts, and accessories provided by Hanil Scientific Inc.
- Do not use scratched or cracked rotor in use.

Loading

- ① Clean the motor shaft and the chamber.
 - When loading the rotor, the temperature should be 10 to 30 degrees.
- ② Load the rotor vertically onto the motor shaft.








Unloading

- ① Hold the blue handle at the center of the rotor and lift it up.

4. Operation

4.1 Operation Panel



Button		Function
	Up	Set the speed or runtime
	Time	Move the cursor left or right
	Accel	Set the speed or runtime
	Decel	Save the value
	Call/Save	Save or call up a program
	Door	Start centrifugation
	Start/Stop/ Short	Stop centrifugation

4. Operation

4.2 Opening and closing the Door



- The door can only be opened if the centrifuge is switched on.
- Do not reach with your fingers between the housing and door.
- Close the door completely before operation.

•Opening the door

Press the Door () button.

•Closing the door

Press the edge of the lid with a light force.

4.3 Loading tubes









- Always use the same type of tube.
- Tubes should be loaded symmetrically.
- Do not exceed the maximum rated speed of the tube.
- Same volume of sample should be put on tubes.
- Check symmetric loading by balancing tubes with scales.







- ① Check the maximum load for each tube.
- ② Put tubes into rotor holes.
- ③ Tubes located opposite each other must be the same type and contain the same quantity.

4. Operation

4.4 Setting RPM/RCF







- ① Press the Enter () button.
- ② Press Left () or Right () button to move the cursor to RPM or RCF mode.
 - ▶ RPM mode: RPM display flashes.
 - ▶ RCF mode: RCF display flashes.
- ③ Press Up () or Down () button until the required RPM/RCF displayed.
- ④ Press the Setup/Enter () button to save the settings.

4.5 Setting run time

- ① Press the Enter () button.
- ② Press Left () or Right () button to move the cursor to Time mode.
 - ▶ minute setting mode: 00' display flashes.
 - ▶ second setting mode: 00'' display flashes.
- ③ Press Up () or Down () button until the required run time displayed.
- ④ Press the Setup/Enter () button to save the settings.





4. Operation

4.6 Setting Accelation/Deceleration rate





- ① Press the Enter () button.
- ② Press Left () or Right () button to move the cursor to Accel/Decel.
 - ▶ Acceleration setting mode:Accel display flashes.
 - ▶ Deceleration setting mode:Decel display flashes.
- ③ Press Up () or Down () button until the required number is displayed.
- ④ Press the Setup/Enter () button to save the settings.

4.7 Saving / Calling up a program

Saving a program


- ① Set the centrifugation time/speed/Accel/Decel values.
- ② Press Call/Save () button.
 - ▶ You can store 10 programs on the device: 0~9
- ③ Select the program slot by pressing Up (), down () button.
- ④ Press the Enter () button to save a program.

Calling up a program

- ① Set the centrifugation time/speed/Accel/Decel values.
- ① Press Call/Save () button.
- ③ Select the program slot by pressing Up (), down () button.
- ④ Press the Enter () button to save the program.

4. Operation

4.8 Start the centrifugation run


- ① Press Start/Stop () button.

4.9 End the centrifugation run

- ① Press Start / Stop () button to stop centrifugation.

4.10 Short spin

The [Short] button is for when press & hold, to accelerate up to maximum speed and decelerate when the button is not pressed.

1. Set the desired speed. [Refer to. 4.4 Setting RPM/RCF]
2. Press the Short button() more than 2sec.
 - ▶ While pressing [Short], the equipment will accelerate up to maximum RPM.
 - ▶ By stop pressing the [Short], the equipment will decelerate to stop.

5. Maintenance

5.1 Care instructions

- The following procedures should be performed regularly.
 - ① Regularly inspect the rotor chamber for check the motor shaft is normal.
 - ② Rotate the shaft with your hand to make sure it turns smoothly
 - ③ Use the stopwatch to check that the time setting is correct
 - ④ If you find any damages, do not use the device. Contact Hanil Scientific Inc.

5.2 Cleaning



- Before cleaning the centrifuge, be sure to switch off the device and disconnect the power cord.

- Outside of the device

- ① Clean the outside of the device with a soft and dry cloth.
- ② Do not use aggressive chemicals on the device such as alcohol, benzene, acetone or phenol.
- ③ If the device is contaminated, use a mild cleaning fluid to clean.
- ④ Make sure do not scratch the surface of the device when cleaning it.
 - ▶ Do not use a metal sponge.
 - ▶ If the device is rusted, remove it with a mild detergent and wipe it with a dry cloth.

- Chamber

- ① If the rotor chamber is not dry, wipe moisture from the chamber with a dry cloth.
- ② Clean the chamber and motor shaft at least once a week using a mild cleaning fluid.

- Rotor

- ① To prevent corrosion, take out the rotor from the rotor chamber.
- ② If any sample is spilled inside the rotor, wash and dry the rotor well.

- ▶ If you have any questions about cleaning your device, please contact us.

5.3 Disposal

In case of product is to be disposed of, the local wastes laws and regulations are to be observed.

6. Troubleshooting



6.1 General errors

Problem	Recommended Action
Power failure	Check the power cord connection. Check the power fuse of the device.
Device cannot be started	Check the lid is closed completely.
Lid cannot be opened	Press the 'Lid open button'.
Lid cannot be closed	Remove the dirt at the door latch and close the lid. Check the lid latch is not damaged.
Unusual noise and vibration	Check the device whether it is installed on the hard and flat place
	Reload the rotor symmetrically. Reload the tubes symmetrically. Tighten the clamping of the rotor with wrench by turning clockwise

6. Troubleshooting

6.2 Error messages

If you cannot remedy an error with recommended actions, please contact Hanil Scientific Inc.

Error code	Problem	Cause	Recommended Action
E1	Imbalance error	<ul style="list-style-type: none"> Asymmetrical placement of tubes. Irregular volume of sample in tubes. Loosened rotor to the shaft. Swaying or operation the unstable ground. 	<ul style="list-style-type: none"> Check the tightness of rotor loading. Check the proper loading of tubes. Check the stable ground or worktable.
E2	Over speed error	<ul style="list-style-type: none"> 10% over the set RPM. Incorrect tuning of motor and controller. 	<ul style="list-style-type: none"> Check controller and motor. Turn the device off and then on again
E3	Motor overheat	<ul style="list-style-type: none"> Motor temperature rises. 	<ul style="list-style-type: none"> Turn the device off and then on again
E4	Motor error	<ul style="list-style-type: none"> Motor failure 	<ul style="list-style-type: none"> Turn the device off and then on again
E5	Lid Open (operating)	<ul style="list-style-type: none"> Lid open while centrifugation Lid sensor error 	<ul style="list-style-type: none"> Switch power off Check lid latch
E7	System error	<ul style="list-style-type: none"> Error of control system Overload of motor Damage of IPM module 	<ul style="list-style-type: none"> Switch power off, restart.
E11	Motor temperature sensor error !	<ul style="list-style-type: none"> Motor temperature sensor failure 	<ul style="list-style-type: none"> Contact Hanil Scientific Inc.
E12	HI voltage Error	<ul style="list-style-type: none"> Motor applied voltage rises abnormally during operation. 	<ul style="list-style-type: none"> Call Hanil Scientific Inc. A/S center

6. Troubleshooting

6.2 Error messages

Error code	Problem	Cause	Recommended Action
E13	Low voltage Error	<ul style="list-style-type: none"> • Motor applied voltage decreases abnormally during operation. 	<ul style="list-style-type: none"> • Switch power off.
E15	RPM Sensing error	<ul style="list-style-type: none"> • Rpm sensor failure 	<ul style="list-style-type: none"> • Restart the device.
E17	communication error	<ul style="list-style-type: none"> • Occurs when communication between Main and io board or between display and IO board is broken 	<ul style="list-style-type: none"> • Restart the device.
E20	Lid_1_sensor error	<ul style="list-style-type: none"> • Lid_1_sensor failure 	<ul style="list-style-type: none"> • Restart the device.
E21	Motor_C_sensor error	<ul style="list-style-type: none"> • Motor Close sensor failure 	<ul style="list-style-type: none"> • Restart the device.
E22	Motor-O_sensor error	<ul style="list-style-type: none"> • Motor Open sensor failure 	<ul style="list-style-type: none"> • Restart the device.

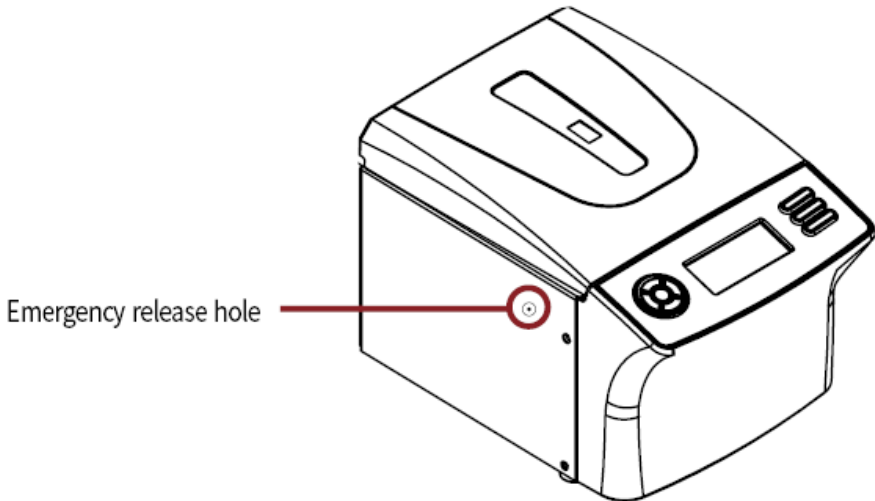
Please contact us if any other error codes occur or if you are not satisfied with the above method.

6. Troubleshooting

6.3 Emergency lid open



If the centrifug door cannot be opened, you can activate the emergency open manually.

1. Wait for rotor to stop before activating the emergency open.
2. Insert a wrench into the emergency release hole and turn it clockwise until the lid is released.



7. Rotor

7.1 Fixed angle rotors

Rotor		Tube Capacity	Max. RPM (rpm) Max. RCF (xg)
A-sero-12(A) 	A-sero-12(B) Incl. a spring holder 	12 x 75 mm tube	3,400 1,118
Type : Angle Rotor Max. Capacity : 12 x 5 mL Size (ø x H) : ø173 x 87.5 mm Radius : 86.5 mm			

Memo



Memo



Memo





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