

Sorvall Evolution RC Superspeed Centrifuge Operating Instructions

02/08/2012 S.V.

Location: 1240 Hach Hall
Contact: Steve Veysey, 1234 Hach Hall

Safety

All researchers working in 1240 Hach Hall must complete the EH&S course: “*Fire Safety and Extinguisher Training*”. When preparing samples in this room, please wear all appropriate personal protective equipment. Aprons, safety glasses, and rubber gloves are available in 1238A Hach Hall. If solvents are involved, consider preparing your samples in room 1238A.

Properly dispose of glass pipettes in the container provided. Waste solvents can be disposed of in the waste containers provided in 1238A. All of the computers in this lab have direct links from the desktop to MSDS sheets, the EH&S Laboratory Safety Manual and to the CIF Safety Manual.



Introduction

You must receive training before using this piece of equipment. The Sorvall Superspeed centrifuge is equipped with three rotors, including 8 x 50 ml, 6 x 250 ml, and 6 x 500 ml. You must provide your own sample tubes. These tubes must be from the list of approved included later in this document.



Rotor Specifications - all are "fixed angle" type

Name	Max Speed RPM***	Max RCF (g-force)	K factor	Critical Speed RPM	Max Compartment Mass (gms)	Capacity (places x ml)
SS-34	15000	26900	1333	1400	115	8 x 50
SS-1500	12000	21880	2305	1200	420	6 x 250
SS-3000	9000	13700	4203	900	780	6 x 500

*** These are reduced from the literature values because of damage to the rotors.

Tube Selection

You may only use tubes that are certified for these rotors. NOTHING available over-the-counter from Chem Stores is compatible with these rotors. However, all of the Sorvall tubes listed in the pages below can be special-ordered through Fisher Scientific, since they now own Sorvall.

If you wish to use non-Sorvall tubes, you must receive permission from Steve Veysey. You will be asked to provide manufacturers literature with all of the critical parameters (dimensions, g-force rating, et cetera) for the proposed tubes.

WARNING!!!

To avoid damage to the instrument or rotors, before you start the centrifuge be certain that:

- **The rotor is locked to the spindle**
- **The lid is locked to the rotor**
- **The load is balanced**

Your major professor will be charged for all repair costs due to your negligence. This can be thousands of \$\$\$.

Observe the Posted Maximum Rotor Speeds

- **SS-34 (8 x 50 ml) 15000 RPM**
- **SLA-1500 (6 x 250 ml) 12000 RPM**
- **SLA-3000 (6 x 500 ml) 9000 RPM**

Finishing Up

Remove the rotor. Ensure that the rotor is clean and dry; place it back in the cabinet. If you have been running at low temperature, there may be frost inside the centrifuge chamber. Keep the centrifuge lid open until you are able to wipe out all moisture. When the centrifuge is completely dry, you may close the lid.

You MUST sign in the logbook every time you use the centrifuge. No exceptions!

Front Panel Displays

Displays



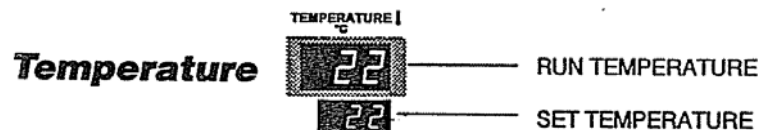
Field	Explanation
Rotor	Selectable rotors, by type, in order listed at right.
Rotor Type	<ul style="list-style-type: none">• RECENT — Last 5 rotors and parameters used• ANGLE — Fixed angle rotors• SWINGING — Swinging bucket rotors• OTHER — All other rotor types.



Option	Explanation
Timed Run	May range from one minute (00:01) to 99 hours and 59 minutes (99:59). The run display counts down from the set time you specify.
Hold Run	Set the Set Time field to HOLD. The run display counts up from 00:00 until you press STOP.



Speed may be set in RPM or RCF (g-force).



Temperature may range from -20°C to $+40^{\circ}\text{C}$.

Operation Summary

Operation

- 1** Set the power switch ON.
- 2** If a large temperature change is required (such as setting 4°C with rotor at ambient), pre-equilibrate the rotor and chamber to desired temperature —precool at 2500 rpm, preheat at 90% of rotor maximum speed for 5 minutes.
- 3** Prepare the rotor: Load and balance the samples. Place the cover (if any) on the rotor and, if there two knobs on the cover, tighten the larger cover locking knob.
- 4** Open the chamber door and install the rotor, making sure it is fully seated, and locking it securely to the drive spindle by tightening the small rotor locking knob.
- 5** Close the chamber door, then identify the installed rotor using the scroll keys or knob:
 - Press a rotor control key once or turn the rotor knob one notch to recall the most recent rotor/parameters.
 - Press the TYPE key at any time to go directly to a specific rotor type.
- 6** Set the run parameters using the scroll keys or knob for the appropriate display:
 - Time—Specify desired run Time or select Hold.
 - Speed—Select RPM or RCF, specify desired Speed, and select acceleration and braking rates.
 - Temperature—Specify desired sample Temperature.
- 7** Press START.

<Tube lists for each Rotor are attached to the PDF version of this document>