Custom Made Spin Coater manual



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1. OVERVIEW

The Spin Coater setup is designed for use in laboratory to efficiently and accurately develop and refine coating applications. It comes with an easy installation which does not require a vacuum pump or nitrogen line. The Spin Coater setup provides the ability to hold the substrate firmly on the substrate holder and provide a better uniform coating film quality across the substrate.

Operation of the Spin Coater setup is controlled by a servo amplifier Mitsubishi MR-J2S-10A which is connected to a servo motor Mitsubishi HC-KFS-13(B). The Spin Coater setup has constant speed program (3000 RPM) and an opportunity to adjust rotating speed from 0 - 4500 RPM. During working the spinning speed is displayed on an interface screen. The acceleration and deceleration rates are constant, appointed speed achieved at 3 seconds and stops at 1 second.

2. SAFETY

WARNING: To avoid safety hazards read the following: Do not leave devices with applied bias or current unattended as a power failure may result in board damage or device damage and potentially hazardous situations.

STANDARDS STATEMENT

This Spin Coater setup is designed to be used as instructed. Operator safety and consideration of safe reliable product parts were key elements in the design. All commercially standard components used in this machine have a minimum of UL and/or CSA ratings. Components built to CE standards have been used wherever possible.

GENERAL HAZARDS

WARNING: Improper handling for operation or service of this equipment can result in serious injury or death! Read this manual before operating or servicing this equipment.

DANGER: This machine is not classified as "Intrinsically Safe." DO NOT use the Spin Coater setup in the presence of an explosive atmosphere.

DANGER: Use under an exhaust hood when flammable or harmful solvents are being used.

WARNING: To avoid severe injury, do not touch or hold the shaft or substrate holder while it is rotating.

WARNING: Do not operate without lid in place to protect operator and others from injury as substrates may fly off rotating substrate holder if used incorrectly.

WARNING: To avoid electrical shock or injury, do not remove lid or try to access any internal parts. Before servicing the Spin Coater setup, DISCONNECT power cord from outlet and wait 10 minutes (high voltage may exist in the machine for some time after removal of power).

CAUTION: The Spin Coater setup uses a ground type power plug, which must be connected to a grounded outlet to prevent electrical shock.

CAUTION: Consult your Material Safety Data Sheets for information about any chemicals you use in your process, and their possible toxicity or reaction with the stainless steel spin coater bowl and Plexiglas XT lid.

POWER CORD SAFETY

Emergency Power Disconnect options: Use the power cord as a disconnecting method. To facilitate disconnect, make sure the power outlet for this cord is readily accessible to the operator.

SERVICING

If servicing is required, please return the unit to NutiMat OÜ. Any other action may void the warranty.

3. COMPONENTS OF THE SPIN COATER SETUP

- Custom Made Spin Coater body with bowl
- Servo motor Mitsubishi HC-KFS-13(B)
- Servo amplifier Mitsubishi MR-J2S-10A
- Transparent bowl cover with feeder hole 20 mm
- Substrate holder for 25x25 mm substrates
- Transparent bowl cover with feeder hole 20 mm
- Allen wrench for mounting substrate holder
- Power cord



4. TECHNICAL SPECIFICATIONS OF SPIN COATER SETUP

Rotational Speed	0 to 4500 RPM
Rated speed	3000 RPM
Max. speed	4500 RPM
Dimensions	265x210x245
Transparent lid	with feeder hole 20 mm from Plexiglas XT
Substrate holder	For 25x25 mm substrates form aluminium alloy
Bowl material	Bowl is made of stainless steel
Body material	Body is made of stainless steel (Aisi 304) and black Plexiglas XT
Input Power	230VAC, 50/60Hz

WARNING: Do not exceed speed of 4500 RPM it may harm the servo motor.

5. INSTALLATIONS

- Do not apply power until all other connections have been made.
- Refer to the specifications section for electrical requirements.
- Place the machine on a solid, level surface, free from vibration and temperature extremes.
- Ambient environment: temperature 0 40 °C, humidity 80% RH maximum
- Refer to the specifications section for electrical requirements.
- NOTE: the machine is not for use in a hazardous atmosphere. (no corrosive gas, inflammable gas)

6. CLEANING

- To clean the lid, bowl and substrate holder use a solvent that is appropriate to dissolve the materials that have been spin coated.
- Use a soft cloth or towel in order to avoid damage to the bowl, lid and substrate holder.
- Take care when cleaning around the controller and display area because organic solvents may damage/remove the label.

If the bowl is highly soiled it can be mounted off as showed below schematically.

- 1. First the substrate holder should be removed from the motor shaft, so that the grub socket screw can be dismounted with Allen wrench, which is included with the Spin Coater setup.
- 2. Secondly two Philips screws on the bottom of the bowl should be dismounted.

