

1. Introduction

Spin coating is a standard laboratory preparation method to make thin films.

In the first instance, the solid material of which a thin film must be made is dissolved in a volatile solvent, thus becoming a solution of medium viscosity. Then a few drops of this solution is put on the substrate with a syringe and the substrate is placed on the inside of the rotational chuck. The size of the substrate should match to the inner diameter of the chuck. In case of square or rectangular substrates the inner diameter of the chuck has to be equal to the diagonal of the substrate. The substrate is automatically held in position by the vacuum underneath that is caused by centrifugal force due to the small holes which exist between the outside and the inner side of the chuck. The spinning is started by turning the 10-gang potentiometer slowly clockwise until the chuck is rotating at desired speed. Due to centrifugal force the substance will be spread homogeneously across the surface of the substrate and a thin film will remain on top.

The film thickness depends on the rotation speed, rotation time and evaporation rate of the solvent during preparation.

2. Safety

Always wear goggles when working with chemicals particularly in case of spinning at high speeds.

3. Operation

As solvents may be toxic, thin film preparation by spin coating it is recommended to be performed in a ventilated cabinet connected to an exhaust system.

The compact design of this series of portable spin coaters allows the user to place the unit in a safe place.

The DC power supply is integrated in the mains socket and is connected to the spin coater by a quick coupling connector.

The speed range depends on the motor driving of the rotational platform. The following ranges are available:

SCI-10:	600 – 4500 rpm (indication: 10 – 75 rps)
SCI-20:	1200 – 9000 rpm (indication: 20 – 150 rps)
SCI-30:	1800 – 14000 rpm (indication: 30 – 220 rps)
SCI-50:	2400 – 19000 rpm (indication: 50 – 380 rps)

The speed can be varied by means of an integrated multiturn potentiometer with 10-turn knob and precision scale.

In all types DC motors with dual bearings are used offering low noise and long life operation (15000 hrs minimum).

During spinning the PTFE-cover must be placed on top of the spin coater. The surplus of solution will be collected in this cover which can easily be cleaned after the spinning.

Special chucks with a reservoir are available for special solutions of which the surplus must be saved. Avoid flooding the top bowl by using too much solution in order to avoid that solution will flow into the shaft hole in the center of the bowl.

4. Optional vacuum pump

The models SCV and SCE have been designed to be used with a vacuum pump. We supply optionally the following types:

- **Miniature diaphragm vacuum pump type MVP.**

This pump is suitable to hold light substrates on the rotational platform by creating a small underpressure of 33 kPascal under the substrate and is recommended for substrates up to 60 mm diameter.

- **Powerful vacuum pump type PVP.**

This pump is creating an underpressure of approx. 100 kPascal and is recommended for substrates up to 100 mm diameter.

All vacuum pumps are supplied complete with a 0.5 m long hose with fast couplings on both ends to connect the spin coater with the vacuum pump.

Operation procedure:

- Connect the spin coater with the vacuum pump by the hose.
- Deposit the substrate on the rotational platform and apply the solution on top of it.
- Switch the vacuum pump on.
- Switch the spin coater on and set the rotation speed.

After spinning:

- Switch the spin coater off.
- Switch the vacuum pump off.
- Take the substrate from the platform.

5. Rotational platforms (chucks)

The space on top of the spin coater is protected by a PTFE cover. After the cover has been removed, one has access to the stainless steel top plate and the rotational platform.

The chuck can be exchanged by pulling it upwards and remove it from the shaft.

Various sizes of chucks are available. Both round and rectangular substrates or glass slides can be used.

Type	For model	Outside diameter	Inside diameter for substrate	Price in Euro
C 10	SCI	Ø 20 mm	Ø 10 mm	120,-
C 30	SCI	Ø 40 mm	Ø 30 mm	125,-
C 25	SCI	Ø 40 mm	Ø 25,5 mm for 18 x 18 mm microscope slides	130,-
C 34	SCI	Ø 40 mm	Ø 34 mm for 24 x 24 mm microscope slides	130,-
C 38	SCI	Ø 40 mm	Ø 38 mm	140,-
C 54	SCI	Ø 55 mm	Ø 54 mm for 50 x 20 mm substrates	250,-
C 60	SCI	Ø 72 mm	Ø 60 mm	260,-
C 70	SCI	Ø 72 mm	Ø 70,7 mm for 50 x 50 mm substrates	275,-
CV 50	SCV(E)	Ø 50 mm	Ø 5 – 40 mm	230,-
CV 70	SCV(E)	Ø 70 mm	Ø 5 – 60 mm	260,-
CV 90	SCV(E)	Ø 90 mm	Ø 5 – 80 mm	290,-
CV 110	SCV(E)	Ø 110 mm	Ø 5 – 100 mm	330,-

Note: We can make special sizes on request.

6. Guarantee

For normal use, we grant a guarantee of 2 years with exception of overloads, unbalances or the use of corrosive media.