

PROGRAMMABLE VACUUM SPIN COATER



Programmable Vacuum Spin Coater - ToronSC™ 350P

ToronSC™ 350P is a programmable vacuum chuck spin coater designed for easy, fast, and reproducible thin film deposition via sol-gel and other liquid coating solutions on substrates up to 8 inches (200 mm) in diameter or 5" × 5" square. As the largest-format spin coater in the ToronSC™ series, it is the preferred choice for research groups and development teams working with full-size semiconductor wafers, large glass substrates, and square panel samples that require uniform coating across a wide surface area.

CE certified and engineered for laboratory, university, and light industrial use, the ToronSC™ 350P spin coater includes a 6-inch vacuum chuck for immediate 6" and 8" wafer use, adhesive tape for coating irregularly shaped or undersized substrates, an oilless vacuum pump, and a 20 mL syringe — providing a complete, ready-to-use spin coating machine package. An optional heating cover (up to 100°C) is available, allowing in-situ thermal annealing or drying of the coating immediately after spin coating without removing the substrate from the instrument.

APPLICATIONS

Programmable Vacuum Spin Coater - ToronSC™ 350P Applications



The ToronSC™ 350P programmable vacuum spin coater is designed for spin coating applications involving chemically aggressive solutions:

- Large-format wafer spin coating: sol-gel and functional film deposition on 6" and 8" silicon wafers for semiconductor and advanced materials research
- Square and rectangular substrate coating: 5" × 5" panel spin coating for glass, polymer, and metal foil substrates in flat panel and solar research
- Photovoltaic research: spin coating of perovskite, organic, and inorganic absorber, transport, and contact layers on large substrates
- Sol-gel functional film deposition: metal oxide, ceramic, and hybrid organic-inorganic coating from sol-gel precursor solutions
- Irregularly shaped substrate coating: use of adhesive tape holder for non-standard substrate shapes and small sample pieces
- In-situ post-deposition annealing (with optional heating cover): thermal drying or crystallization of the spin-coated film immediately after deposition
- University and industrial R&D laboratories: general-purpose large-substrate spin coating machine for multi-material thin film research programs



FEATURES

Programmable Vacuum Spin Coater - ToronSC™ 350P Key Features

1. Largest Format in Series — 8" Wafer / 5"×5" Square

The ToronSC™ 350P accommodates the widest substrate range in the ToronSC™ spin coater series: round substrates up to 8" (200 mm) diameter and square panels up to 5" × 5" (127 mm × 127 mm), covering the full range of common research and pilot production substrate sizes.

2. Two-Segment Programmable Digital Control

The digital control panel provides two independently programmable speed-and-time segments, enabling the standard two-step spin coating sequence in a fully automated single-button-start cycle.

3. Adhesive Tape for Irregular and Undersized Substrates

The included adhesive tape (6" W × 24" L) allows substrates smaller than 6" or irregularly shaped samples to be secured on the chuck without needing a precisely matched vacuum chuck size — expanding the range of substrates the instrument can handle.

4. Adjustable Rotating Syringe Holder

The syringe holder height is adjustable and rotates freely along the support rod, allowing the dispensing tip to be positioned precisely over the substrate center or at any other dispense position, and accommodating syringes of different sizes.

5. Polypropylene Chemical-Resistant Chamber

The spinning chamber is made of PP material for chemical resistance to most sol-gel solvents, acids, and alkalis used in thin film coating research, and is easy to clean with solvent rinsing.

6. Oilless Vacuum Pump and 20 mL Syringe Included

A complete spin coating machine package: oilless vacuum pump for clean substrate fixation, 20 mL syringe for solution dispensing, and one wastewater filter for pump protection — all included for immediate use.

7. Optional Heating Cover (up to 100°C)

An optional heating cover with digital temperature controller up to 100°C is available, enabling in-situ thermal drying or soft annealing of the spin-coated film immediately after deposition without removing the substrate from the instrument.

8. CE Certified CE

Certified for compliance with European safety and electromagnetic compatibility standards.

THEORY & METHOD

Theory and Method

The ToronSC™ 350P uses centrifugal spin coating to deposit uniformly thin films from liquid solutions across large flat substrates. The substrate is held by vacuum suction on the included 6-inch vacuum chuck. For substrates smaller than 6" or irregularly shaped samples, the included adhesive tape is placed on the chuck and the substrate is positioned on the tape — the vacuum holds the tape, and the tape holds the substrate, enabling a wide variety of sample geometries to be coated without specialized chucks.

The two-segment programmable digital control panel allows the operator to set spin speed and time independently for two sequential spin steps, supporting the standard dispense-and-spread spin coating protocol. The PP chamber is chemically resistant to most sol-gel solvents, and the rear drainage outlet allows clean liquid management. The syringe holder height is adjustable and can rotate freely along the support rod, allowing precise positioning of the solution dispense point over any area of the substrate.

TECHNICAL SPECIFICATIONS

Programmable Vacuum Spin Coater – ToronSC™ 350P Technical Specifications

Parameter	Specification
Model	ToronSC™ 350P
Maximum Substrate Size	8" (200 mm) round or 5" × 5" (127 × 127 mm) square
Spin Speed Range	500 – 6,000 rpm
Programmable Segments	2 segments (speed + time each)
Substrate Fixation	Vacuum chuck (6" chuck included)
Irregular Substrate Holder	Adhesive tape (6" W × 24" L) included
Chamber Diameter	250 mm
Chamber Material	Polypropylene (PP) — chemical resistant
Syringe Holder	Adjustable height and rotation on support rod
Coating Solution	20 mL syringe (included)
Vacuum Pump	Oilless vacuum pump (included)
Optional Accessory	Heating cover with digital controller (up to 100°C)
Voltage	AC 110/220V, 50/60 Hz
Certification	CE



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