

ANTI-CORROSION SPIN COATER



Anti-Corrosion Spin Coater - ToronSC™ 2000C

ToronSC™ 2000C is an anti-corrosion spin coater built for spin coating applications involving aggressive chemical solutions, including strong acids, strong alkalis, and other corrosive liquid or sol-gel coatings. The entire chamber is fabricated from chemical-resistant polypropylene (PP) material, making this spin coating machine compatible with reactive coating solutions that would degrade the aluminum or stainless-steel chambers found in standard spin coaters. The ToronSC™ 2000C is also designed for operation inside a glovebox under argon gas atmosphere, making it an ideal solution for moisture-sensitive and oxygen-sensitive spin coating processes.

Equipped with a remote-control digital control box, the ToronSC™ 2000C spin coater allows the operator to control spin speed and programming from outside the glovebox or fume hood — a critical safety and convenience feature for corrosive or inert-atmosphere coating workflows. The package includes four vacuum chucks accommodating substrates from 10 mm to 6" in diameter, an oilless vacuum pump, and a 20 mL syringe for immediate deployment.

APPLICATIONS

Anti-Corrosion Spin Coater - ToronSC™ 2000C Applications

The ToronSC™ 2000C anti-corrosion spin coater is designed for spin coating applications involving chemically aggressive solutions:

- Acid and alkali sol-gel coating: deposition of oxide and functional films from strongly acidic or basic precursor solutions on semiconductor wafers and glass substrates
- Photoresist spin coating: application of photoresists requiring acid or base chemistry on semiconductor wafers up to 6" diameter
- Corrosive electrolyte coating: thin film deposition of electrolyte or electrocatalyst layers from reactive aqueous solutions

- Glovebox spin coating: moisture-sensitive and oxygen-sensitive coating processes performed under argon atmosphere inside a sealed glovebox
- Perovskite solar cell fabrication: corrosive precursor solution coating for perovskite absorber layers in photovoltaic research
- Battery electrode coating: application of functional coatings from reactive slurries on current collector substrates
- Protective and functional film deposition: corrosion-resistant or functional oxide coatings from aggressive chemical precursors



FEATURES

Anti-Corrosion Spin Coater - ToronSC™ 2000C Key Features

The ToronSC™ 2000C anti-corrosion spin coater is built with a targeted feature set for chemically demanding thin film coating applications:

1. Full Polypropylene Anti-Corrosion Chamber

The entire spinning chamber is constructed from chemical-resistant polypropylene material, enabling use with strong acidic and alkaline coating solutions that would attack standard aluminum or steel spin coater chambers. The PP liquid disk and bowl resist chemical degradation and allow thorough solvent rinsing.

2. Argon Atmosphere Glovebox Compatible

The ToronSC™ 2000C spin coater is designed for deployment inside a sealed glovebox under argon or other inert gas atmospheres, supporting oxygen-sensitive and moisture-sensitive spin coating processes without exposing the coating solution to ambient air.

3. Remote-Separated Digital Control Box

The digital control box is physically separated from the spin coater body, allowing the operator to set spin speed, program segments, and initiate the coating cycle from outside the glovebox or fume hood — improving both operator safety and convenience for corrosive or inert-atmosphere applications.

4. Two Programmable Speed Segments

The spin coating machine supports two independently programmable speed segments (speed and time), allowing a low-speed dispense step followed by a high-speed spread step in a single automated sequence — the standard two-step spin coating protocol.

5. Variable Spin Speed 500–8,000 rpm

Continuously adjustable spinning speed from 500 to 8,000 rpm, covering the range needed for most sol-gel and photoresist spin coating applications at standard film thicknesses.

6. Four Vacuum Chucks (10 mm to 6" Substrates)

Four vacuum chuck sizes are included, accommodating substrates from 10 mm to 6 inches (152 mm) in diameter. Vacuum suction secures the substrate during the full spin cycle.

7. Oilless Vacuum Pump and 20 mL Syringe Included

A complete package including an oilless vacuum pump for clean, oil-free suction, and a 20 mL syringe for precise coating solution dispensing — ready for immediate use upon installation.

THEORY & METHOD

Theory and Method

The ToronSC™ 2000C uses centrifugal force to spread liquid coating solutions uniformly across a flat substrate surface. The substrate is secured to the vacuum chuck by vacuum suction, which holds it firmly during high-speed rotation. A measured volume of coating solution (dispensed via the included syringe) is applied to the center of the substrate. As the spin coater accelerates to the programmed speed, centrifugal force drives the liquid outward from the center across the substrate surface, and excess solution is expelled off the edges into the surrounding chamber.

The final film thickness is determined by the solution viscosity, concentration, and the programmed spin speed and duration. The polypropylene chamber construction is chemically inert to strong acids, alkalis, and most organic solvents, protecting the instrument from corrosive damage and allowing full rinse cleaning between runs. The vacuum pump maintains suction on the chuck throughout the spin cycle, preventing substrate slippage even at maximum speed.

TECHNICAL SPECIFICATIONS

Anti-Corrosion Spin Coater - ToronSC™ 2000C Technical Specifications

Parameter	Specification
Model	ToronSC™ 2000C
Chamber Material	Polypropylene (PP) — anti-corrosion, acid & alkali resistant
Maximum Substrate Size	6" (152 mm) diameter
Spin Speed Range	500 - 8,000 rpm
Programmable Segments	2 segments (speed + time each)
Vacuum Chucks Included	4 chucks (10 mm to 6" substrate range)
Control Box	Separated remote digital control box
Atmosphere Compatibility	Argon gas (glovebox compatible)
Vacuum Pump	Oilless vacuum pump (included)
Syringe	20 mL syringe (included)
Voltage	AC 110/220V, 50/60 Hz
Certification	CE



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