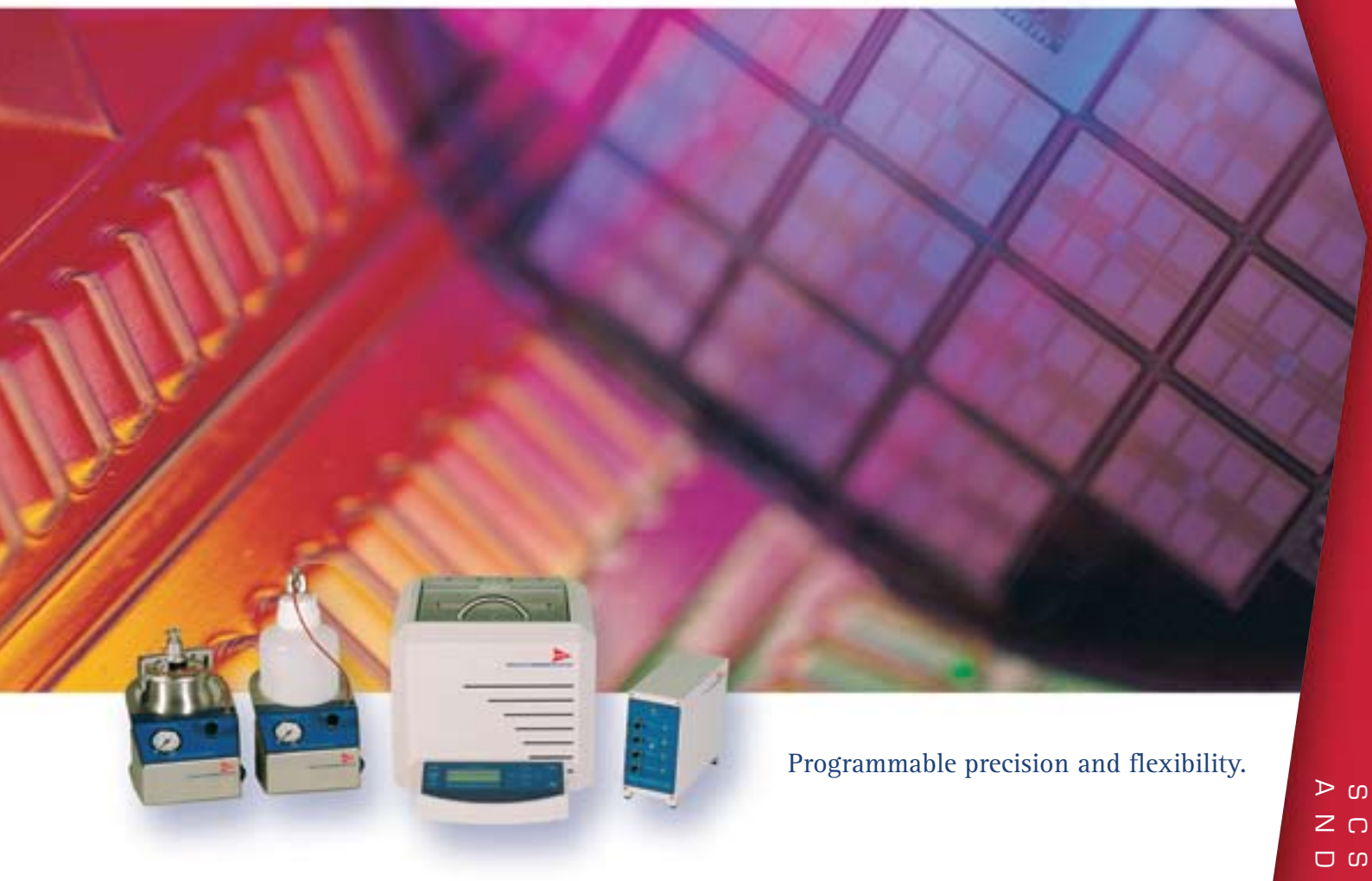
SPECIALTY COATING SYSTEMS™



Programmable precision and flexibility.

SCS G3 SPIN COATER AND MULTI-DISPENSE

The SCS G3 Spin Coater series sets the standard in operating precision and programming flexibility, with a high level of rotation accuracy and repeatability, along with precise acceleration and deceleration control. The G3, coupled with the SCS Multi-Dispense, enables research and development laboratories to easily and efficiently develop and refine coating applications for a variety of uses.

SCS G3 Spin Coater Series

The SCS G3 Spin Coater series accurately applies liquid coating materials – such as photoresists, polyimides, metallo-organics, dopants and silica films on planar substrates. The non-programmable SCS G3-8 performs single-step coating profiles. The programmable G3P models store and execute up to 30 programs with 20 steps each, which are easily entered on the front-panel LCD display and keypad. Optional PC interface software allows external programming, profile storage, diagnostics, vacuum on/off, slow speed centering, and programmable home position.

Program Specifications and Profile

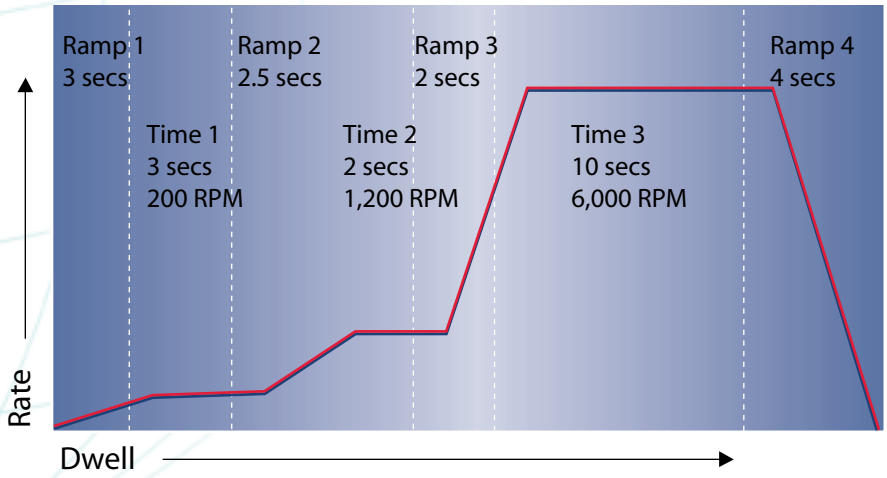
Figure 1 shows a representative example of a coating cycle that is easily and quickly programmed, saved and executed. Each step of the cycle can be defined in the range of 0 to 9,999 RPM (4,000 RPM max for the 15-inch model), with ramp times from 0.1 to 25.5 seconds. A single step may have a dwell time of up to 999 seconds, and coating cycles are interruptible by the operator at any time. Ramp-up time is dependent on the chuck size and substrate weight.

Control Panel Features	Non-Programmable	Programmable
Recipe Number		✔
Speed	✔	✔
Remaining Process Time	✔	✔
Message Line	✔	✔
Arrow Control	Ramp Up/Down, Dwell	Right, Left, Up, Down
Start and Stop Buttons	✔	✔
Mode, Clear and Enter Buttons		✔

Characteristic	Range	Tolerance
Rotational Speed	0 to 9,999 RPM[1] in 1 RPM increments	± 1 to 3 RPM full scale
Acceleration/ Deceleration Time[2]	0.1 to 25.5 seconds in 0.1 second increments	± 0.05 seconds
Dwell Time	0 to 999 seconds in 1 second increments	± 0.05 seconds
Dispense Time (optional feature)	0 to 25.5 seconds in 0.1 second increments	± 0.05 seconds
Acceleration/ Deceleration Linearity		± 0.1 percent

1. 4,000 RPM maximum for the 15-inch bowl unit.
2. Size and weight of substrate will affect acceleration values.

Figure 1: Representative Coating Cycle

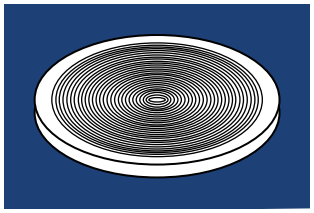


Vacuum Chucks

Accessory chucks are available in several materials, including stainless steel, hard anodized aluminum, DELRIN® and Teflon®, for a variety of substrate types and dimensions. Chuck components are machined to close tolerances for flatness and rigidity and feature a cross pattern to distribute the vacuum across mounting surfaces. A chuck size of 0.25 to 1 inch less than the substrate diameter is recommended. Fragile substrates should be supported across the entire surface.

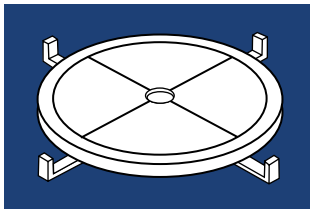
Type CS: Flat Surface Cross and Scroll

Used to hold a thin, planar substrate such as silicon, glass or germanium on a spinning shaft for maximum rotational speed. Has cross and scroll design.



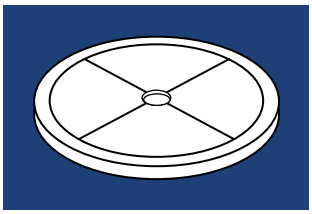
Type L: O-Ring Vacuum-Holding with Mechanical Locating Fingers

Designed for heavy, large or unsymmetrical substrates. Guide fingers assist in positioning and holding substrates. Also includes an O-ring vacuum seal.



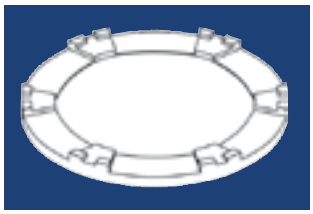
Type H: O-Ring Vacuum-Holding

Used to hold relative heavy substrates, such as glass, quartz, ceramic and metal. Features O-ring vacuum seal.



Type Pedestal: Non-Vacuum

Custom manufactured to precise user-specified dimensions. Designed for double coating applications (substrates do not touch bottom of chuck).



SCS Multi-Dispense

The SCS Multi-Dispense enables users to dispense liquid materials to an SCS spin coater from up to four different dispense modules (three with the use of N_2). Materials can include coatings, solvents and cleaning solutions, in addition to N_2 for blow-off or drying. The Multi-Dispense eliminates the need for time-consuming cleaning and change-over, while providing the accurate and controlled coatings you have come to expect from SCS.

SCS Multi-Dispense Specifications

Control Unit

- Powered and operated by spin coater
- Controls up to four dispense modules
- Nitrogen Supply: 30 psi/2.1 bar, >1 cfm/0.472 L/s
- Weight: 5 lb/2.3 kg

Stainless Steel Dispense Module

- 1 qt (0.95 L) stainless steel
- Pneumatically controlled material valve
- Maximum pressure: 15 psi/1.034 bar
- Various needle sizes available
- Luer lock needle port

HDPE Dispense Module

- 2.1 qt (2 L) HDPE
- Pneumatically controlled material valve
- Maximum pressure: 5 psi/0.344 bar
- Various needle sizes available
- Luer lock needle port

SCS G3 Spin Coater Specifications

Program Storage	
Nonprogrammable	Single step profile
Programmable	Up to 30 programs, 20 steps each
Bowl Size	
Nonprogrammable	8 in / 29.3 cm
Programmable	8, 12 and 15 in / 29.3, 30.5 and 38.1 cm
Power Input	115/230 VAC, 50/60 Hz, 1Ø
Vacuum Input	Minimum 17 in Hg / 430 mm Hg; O.D. fitting: 0.25 in / 0.635 mm
Purge Input	0.55 CFM at 5 psi / 14.15 CLM at 0.35 kg/cm^2 air or nitrogen (with optional internal vacuum: 2.2 CFM, 60 psi)
Dimensions (W x D x H)	
Nonprogrammable, 8 in	12 x 15.4 x 10.5 in / 30.5 x 39.1 x 26.7 cm
Programmable, 8 in	12 x 16.5 x 11.9 in / 30.5 x 41.9 x 30.2 cm
Programmable, 12 in	16 x 20.5 x 11.9 in / 40.6 x 52.1 x 30.2 cm
Programmable, 15 in	19 x 23.5 x 11.9 in / 48.3 x 59.7 x 30.2 cm
Optional Features	
Nonprogrammable	External vacuum pump
Programmable	External vacuum pump PC interface software Foot pedal Fume exhaust adapter Manual dispense Automated dispense (SCS Multi-Dispense)

Innovative solutions for advanced technologies.

Specialty Coating Systems leads the industry in providing Parylene solutions for its global customers' advanced technologies. SCS is a direct descendant of the companies that originally developed Parylene, and we have 40 years of experience and expertise that we leverage on every project for our customers—from the initial planning phases, to advanced engineering, to the development of application processes.

Our worldwide resources include highly experienced sales engineers, some of the world's foremost Parylene specialists, and expert manufacturing personnel, working in ten state-of-the-art coating facilities around the globe. In addition to Parylene coating services, we design and manufacture industry-leading Parylene deposition systems; liquid spray, dip and spin coating systems; ionic contamination test systems; and UV and thermal cure units. Our equipment is used in environments that range from university and research labs to high-volume production applications.

Our extensive and proactive approach to production and quality requirements—testing, validating, documenting and processing—provides our customers peace of mind and minimizes their resources needed to meet the most challenging industry specifications and quality requirements.

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SPECIALTY COATING SYSTEMS™

SCS 6800 Spin Coater Series

SCS 6800 Spin Coater Series

The SCS 6800 Spin Coater Series enables R&D and university laboratories to efficiently and accurately develop and refine coating applications. Its proprietary circuitry and user-friendly operation allow for the uniform application of photoresists, polyimides, metal-organics, dopants, silica films and most organic and aqueous solutions to planar substrates.

SCS 6800 Spin Coater Series Features

- Precise control of spin speed and acceleration/deceleration rates
- Easy-to-use three-button keypad and LCD display on the front panel
- Clear cover features a dispensing slot and safety interlock to prevent operation when the lid is removed
- Non-programmable model (8-inch) can store and execute a single recipe with up to four steps
- Programmable models (8- and 12-inch) can store and execute up to three recipes with eight steps each

Optional features, such as a foot pedal, external software and an automated dispense system, are available on programmable models.

SCS Multi-Dispense

The SCS Multi-Dispense integrates with an SCS Spin Coater to dispense liquid materials from up to four different material tanks (three with the use of N_2) to provide accurate and controlled coating cycles. Materials can include coatings, solvents and cleaning solutions, in addition to N_2 for inerting or drying.

SCS 6800 Series Performance

Characteristic	Range	Tolerance
Rotational Speed	0 to 9,999 RPM in 1 RPM increments	± 1 to 3 RPM full scale
Acceleration/ Deceleration Time[1]	0.1 to 30 seconds in 0.1 second increments	± 0.05 seconds
Dwell Time	0 to 999 seconds in 1 second increments	± 0.05 seconds
Dispense Time (programmable model only)	10 to 30 seconds in 0.1 second increments	± 0.05 seconds
Acceleration/ Deceleration Linearity		± 0.1 percent

[1]Size and weight of substrate will affect acceleration values.

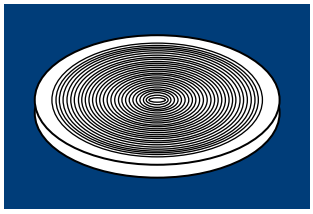
SCS 6800 SPIN COATER SERIES

Vacuum Chucks

Accessory chucks are available in several materials, including stainless steel, hard anodized aluminum, Delrin® and Teflon®, for a variety of substrate types and dimensions. Chuck components are machined to close tolerances for flatness and rigidity and feature a cross pattern to distribute the vacuum across mounting surfaces. A chuck size of 0.25 to 1 inch less than the substrate diameter is recommended. Fragile substrates should be supported across the entire surface.

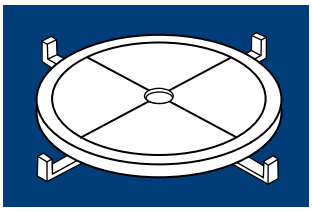
Type CS: Flat Surface Cross and Scroll

Used to hold a thin, planar substrate such as silicon, glass or germanium on a spinning shaft for maximum rotational speed. Has cross and scroll design.



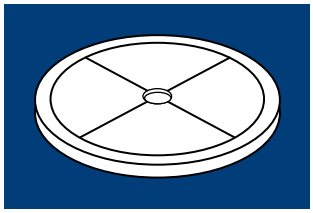
Type L: O-ring Vacuum-Holding with Locating Fingers

Designed for heavy, large or unsymmetrical substrates. Guide fingers assist in positioning and holding substrates. Also includes an O-ring vacuum seal.



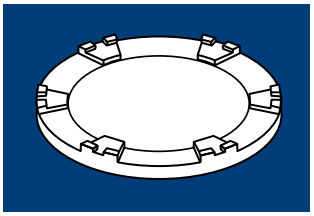
Type H: O-ring Vacuum-Holding

Used to hold relatively heavy substrates, such as glass, quartz, ceramic and metal. Features O-ring vacuum seal.



Type Pedestal: Non-Vacuum

Custom manufactured to precise user-specified dimensions. Designed for double coating applications (substrates do not touch bottom of chuck).



SCS 6800 Spin Coater Series Specifications

Program Storage	
Nonprogrammable	1 recipe with 4 steps (includes ramp up and down)
Programmable	Up to 3 recipes, 8 steps each
Bowl Size	
Nonprogrammable	8 in / 20.3 cm
Programmable	8 in and 12 in / 20.3 and 30.5 cm
Power Input	120 / 240 VAC, 50 / 60 Hz,1Ø
Vacuum Input Minimum	17 in Hg / 430 mm Hg; O.D. fitting: 0.25 in / 0.635 mm
Purge Input	0.55 CFM at 5 psi / 14.15 CLM at 0.35 kg / cm^2 Dry air or nitrogen
Dimensions (W x D x H)	13.25 x 18 x 10.8 in / 33.7 x 45.7 x 27.4 cm
Optional Features	
Nonprogrammable	External vacuum pump
Programmable	External vacuum pump Software for external programming and unlimited recipe storage on the user's PC Foot pedal to start the spin coater Automated dispense system (SCS Multi-Dispense)

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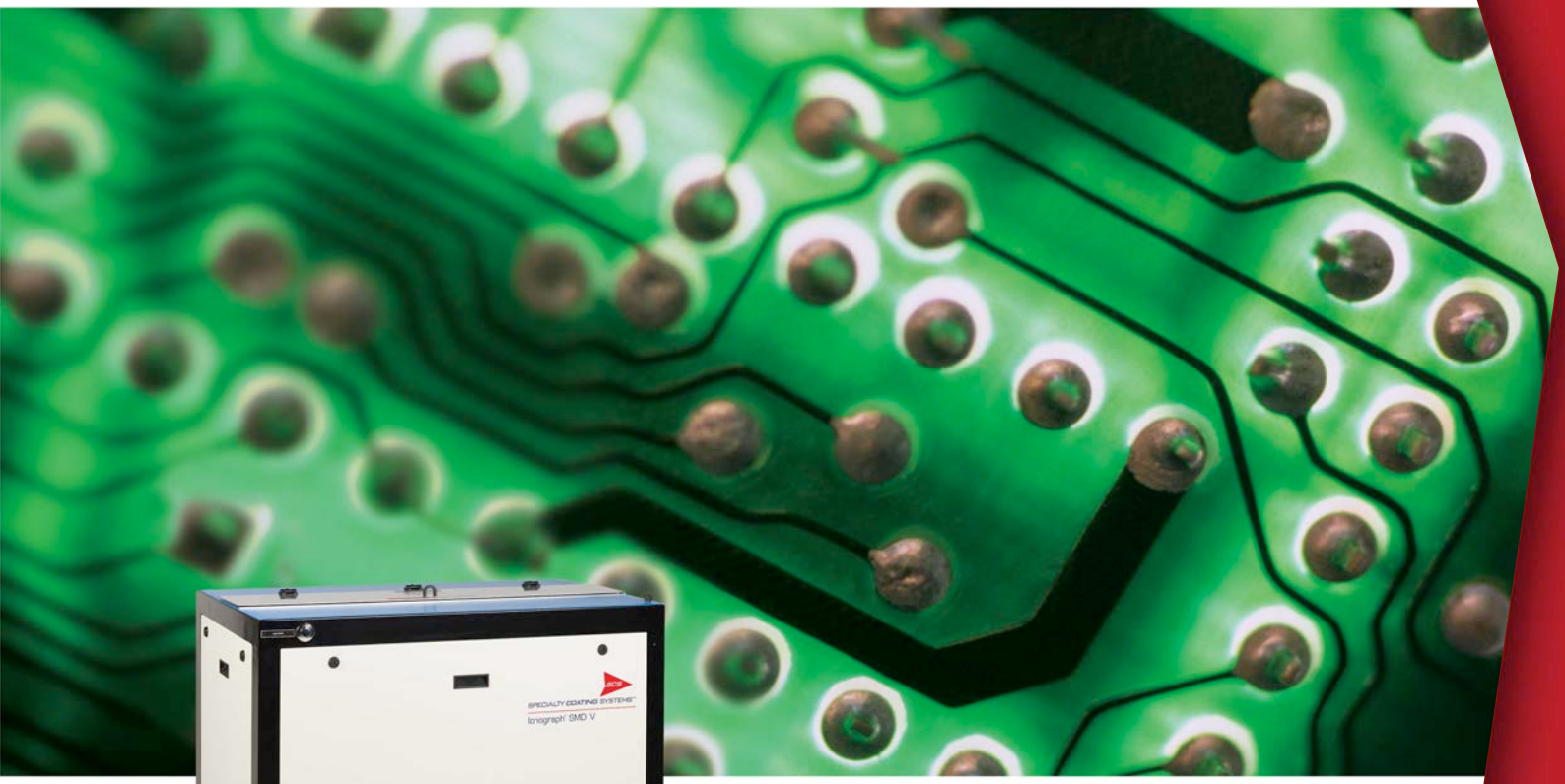

Fast and accurate cleanliness testing.

SCS IONOGRAPH® SERIES

Specialty Coating Systems' name is synonymous in the industry with automated ROSE (Resistivity of Solvent Extract) testing systems. SCS Ionograph® ionic contamination test systems utilize the dynamic extraction method to measure resistivity change when a substrate is submerged in the ultra-pure test solution. The degree of change in resistivity indicates the level of contamination, which is often the result of residues from fabrication and board assembly processes.

SCS Ionograph Test Systems

SCS offers a full range of capacity and control to meet the needs of any lab or manufacturer. Designed for fast and accurate ionic contamination cleanliness testing, SCS Ionographs:

- Determine the cleanliness of electronic components, assemblies with SMT devices, and bare and assembled printed circuit boards.
- Provide an accurate, repeatable and rapid method for determining cleanliness on location.
- Provide immediate process control results, negating the need for outside laboratory testing.
- Verify proper cleanliness of surfaces prior to the application of conformal coatings or potting compounds.
- Comply with industrial specifications such as ANSI/J-STD-001 and IPC-TM-650, and are specifically named in MIL-STD-2000A and MIL-P-28809A.

SCS Ionograph SMD V

SCS Ionograph SMD V is a floor unit commonly used for larger circuit boards in high-volume production environments. Submerged agitation jets and optional heated extract solution provide outstanding sensitivity, operational efficiency and the ability to test ultra-fine pitch components with ease and accuracy.

The SCS Ionograph SMD V offers users the ability to test components with a heated or non-heated test solution. IPC-TM-650 describes the benefit of a heated solution to "accelerate and improve the efficiency of extraction of ionic material from poorly accessible regions, such as under surface-mounted components." In addition to increasing cleaning efficiency, a heated system also ensures temperature consistency of the test solution, whereas solution temperature in an unheated system can vary due to circulation pump friction created during the testing process.

The CE-certified Ionograph SMD V is available with a convenient onboard all-in-one computer or tablet, providing efficient control and monitoring of the test system using Windows®-based SCS PowerView™ software. The system features easy-access door panels for the routine maintenance of consumable components (e.g., DI columns and pump filter).

Ionograph SMD V

Ionograph BT SP

Ionograph BT MP

Ionograph BT LP

SCS Ionograph BT Series

SCS also offers convenient benchtop Ionographs for the quick and accurate testing of individual parts, complete assemblies or small devices. The units enable users to match the test cell size with common substrate sizes to provide enhanced testing accuracy.

SCS Ionograph BT models are available in multiple test cell sizes, including:

- Small Parts (SP): 6 x 6 in
- Medium Parts (MP): 14 x 12 in
- Large Parts (LP): 14 x 20 in

BT Series Ionographs, operated by Windows-based SCS PowerView software, are available with an all-in-one computer or tablet for maximum convenience and efficiency. The CE-certified systems feature easy-access door panels for the routine maintenance of consumable components (e.g., DI columns and pump filter) and their full stainless steel structure is durable for easy cleaning and corrosion resistance. For enhanced safety, electronic components are isolated in a separate, remote control module.

SCS PowerView™ Software

SCS Ionographs are controlled by proprietary PowerView software, specifically developed for the ultimate programming and operation of SCS ionic contamination test equipment. Users can create, save and run unlimited test profiles, and collected data can be archived, exported and analyzed.

The Windows-based program establishes contamination testing parameters and calibrates equipment for consistent, repeatable and accurate measurements. Data is transmitted to the controlling computer for export, reporting and comparison, providing unparalleled ease of analysis and flexibility in creating data charts and tables.

PowerView Features

- Enhanced 32 or 64-bit user interface
- Test solution concentration calculations
- Robust reporting of test results
- Enhanced, interactive graphical summaries
- Increased data filter capabilities
- Built-in profile system
- Simplified database export capabilities
- Multi-level password protection for added security
- Operates on multiple Windows platforms
- Network connectivity for remote access/ archiving
- PDF test results for ease of dissemination

SCS Ionograph Specifications

Characteristic	SMD V Module	BT Series: Small Parts	BT Series: Medium Parts	BT Series: Large Parts
Test Cell Size (W x H x D)	18 x 20 x 5* in / 45.7 x 50.8 x 12.7 cm 26 x 20 x 5* in / 66 x 50.8 x 12.7 cm 30 x 26 x 5* in / 76.2 x 66 x 12.7 cm 38 x 26 x 3.5 in / 96.5 x 66 x 8.9 cm	6 x 6 x 1.125 in / 15.2 x 15.2 x 2.9 cm	14 x 12 x 2.5 in / 35.6 x 30.5 x 6.4 cm	14 x 20 x 2.5 in / 35.6 x 50.8 x 6.4 cm
Estimated Solution Capacity	6.5 - 15 g / 24.6 - 56.8 L	0.4 g / 1.5 L	2.6 g / 10 L	4 g / 15 L
Dimensions (W x H x D)	43.5 x 39.1 x 26.7 in / 110.5 x 99.3 x 67.8 cm	11 x 20.75 x 15 in / 27.9 x 52.7 x 38.1 cm	15.25 x 19.75 x 15 in / 38.7 x 50.2 x 38.1 cm	15.25 x 27 x 16.25 in / 38.7 x 68.6 x 41.3 cm
Weight	382 lb / 173 kg	46 lb / 20.9 kg	64 lb / 29 kg	78 lb / 35.4 kg
Power Requirements	120 VAC, 60 Hz, 10 A / 230 VAC, 50 Hz, 5 A	120 VAC, 60 Hz, 1 A / 230 VAC, 50 Hz, 0.5 A	120 VAC, 60 Hz, 1 A / 230 VAC, 50 Hz, 0.5 A	120 VAC, 60 Hz, 1 A / 230 VAC, 50 Hz, 0.5 A
Maximum Operating Temp.**	113° F / 45° C	—	—	—

Test cell tapers from 5-in/12.7-cm at top to 3.1-in/7.9-cm at bottom.
***Only applicable with optional heater*

Innovative solutions for advanced technologies.

Specialty Coating Systems leads the industry in providing Parylene solutions for its global customers' advanced technologies. SCS is a direct descendant of the companies that originally developed Parylene, and we have more than 40 years of experience and expertise that we leverage on every project for our customers—from the initial planning phases, to advanced engineering, to the development of application processes.

Our worldwide resources include highly experienced sales engineers, some of the world's foremost Parylene specialists, and expert manufacturing personnel, working in eleven state-of-the-art coating facilities around the globe. In addition to Parylene coating services, we design and manufacture industry-leading Parylene deposition systems; liquid spray, dip and spin coating systems; ionic contamination test systems; and UV and thermal cure units. Our equipment is used in environments that range from university and research labs to high-volume production applications.

Our extensive and proactive approach to production and quality requirements—testing, validating, documenting and processing—provides our customers peace of mind and minimizes their resources needed to meet the most challenging industry specifications and quality requirements.

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SCS OMEGAMETER SMD 650

SCS OMEGAMETER SMD 650

Omegameter test systems from Specialty Coating Systems (SCS) are the industry standard for determining ionic contamination on printed circuit boards and assemblies using static test methodology. In fact, SCS' name is synonymous with automated ROSE (Resistivity of Solvent Extract) testing systems, which enable manufacturers to test for contamination, as defined by IPC-TM-650 (Test Method 2.3.25), for the purpose of process control.

The Omegameter SMD 650, the latest automated ROSE testing system available from SCS, utilizes the static extraction method to measure resistivity change when a substrate is submerged in ultra-pure test solution. The amount of change in resistivity indicates the level of contamination, which is often the result of residues from upstream manufacturing processes.

The Omegameter SMD 650 offers manufacturers the ability to test components nondestructively with a heated or non-heated test solution. IPC-TM-650 describes the benefit of a heated solution to "accelerate and improve the efficiency of extraction of ionic material from poorly accessible regions, such as under surface-mounted components." In addition to increasing efficiency, a heated system also ensures temperature consistency of the test solution, whereas solution temperature in an unheated system can vary due to environmental conditions and the natural warming of test solution during recirculation. Variation in temperature yields less reliable results.

The software-controlled Omegameter SMD 650 provides unlimited storage of test profiles, which can be customized for easy identification by operators. Additionally, the software stores test results that can later be viewed, sorted, filtered, printed as full-size PDF files and/or exported into a spreadsheet for further analysis. Operator-specific privileges may be established through the use of password-protected user accounts.

The first static test system on the market, the SCS Omegameter has a long history of being an accurate, effective and practical quality assurance tool. The Omegameter SMD 650 continues this strong product legacy as the most trusted name in the industry.

OMEGAMETER SMD 650 PRODUCT BENEFITS

- Identifies presence of ionic contamination on bare and assembled printed circuit boards and other electronic components.
- Provides an accurate, repeatable and nondestructive method for determining cleanliness on location.
- Provides immediate process control results, eliminating the need for outside laboratory testing.
- Verifies proper cleanliness of surfaces prior to the application of conformal coatings or potting compounds.
- Complies with current industrial specifications such as ANSI/J-STD-001 and IPC-TM-650, and obsolete military specifications, e.g., MIL-STD-2000A.

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OMEGAMETER SMD 650 FEATURES

- Self-contained system
- Simple, user-friendly operation featuring integrated computer and display
- Stair-step design allows for easier loading of parts into test cell
- Heated test solution for improved solubility of contaminants per IPC-TM-650
- Spray jets increase contamination removal
- Automated process identifies end of test

SOFTWARE FEATURES

- Proprietary Windows®-based software with touchscreen monitor
- Unlimited test profiles with custom names
- Runtime contamination graphs
- Sort, filter and review historical test results
- Full-size PDF test reports
- Password-protected user accounts
- Optional LAN connectivity
- Convenient USB port for peripheral keyboard, mouse, printer, etc.

OMEGAMETER SMD 650 SPECIFICATIONS

Power Input	220 VAC ±10%, 50/60 Hz, 6.5A
Dimensions (W x D x H)	43 x 29 x 54 in / 109.2 x 73.7 x 137.2 cm (with 26 x 26 in test cell)
Weight	252 lb / 114 kg
Solution Capacity	10 gal / 37.9 L
Test Cell Assembly Options	8 in x 8 in / 20.3 cm x 20.3 cm 12 in x 12 in / 30.5 cm x 30.5 cm 12 in x 18 in / 30.5 cm x 45.7 cm 18 in x 18 in / 45.7 cm x 45.7 cm 26 in x 26 in / 66.0 cm x 66.0 cm

INNOVATIVE SOLUTIONS FOR ADVANCED TECHNOLOGIES.

With over 45 years of experience and locations around the world, Specialty Coating Systems is the global leader in Parylene conformal coatings and technologies. This extensive coating and application experience is leveraged on each and every customer project, including the industry-leading systems that SCS designs and manufactures. From conformal coating, dispensing and cure systems to ionic contamination test systems, SCS equipment is used in environments that range from university and research labs to high-volume production facilities. SCS' proactive approach to production and quality requirements—testing, validating, documenting and processing—enables customers and their advanced technologies to meet the most challenging industry specifications and quality requirements.

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SPECIALTY COATING SYSTEMS™

SCS P3201 Dip Coater

SCS P3201 Dip Coater

The SCS P3201 is a precision dip coating system for coating of printed circuit boards in a production setting. This system can be used to apply urethane, epoxy, silicone and acrylic coatings, as well as photoresists and solder mask materials.

This efficient dip coating system uses a stationary tank and an air-over-oil cylinder mechanism to move circuit assemblies into and out of the coating. It meets NFPA-79 conformance for Class I, Group D explosion-proof standards for a Division I environment. A stainless steel tank cover minimizes vapor loss.

The SCS P3201 makes efficient use of coatings and ensures complete coverage on both sides of coated assemblies. Accurate immersion control eliminates the need to mask areas that remain above the dip line.

- Powered by compressed air-over-oil cylinder for smooth, explosion-proof operation
- Adjustable immerse and lift speeds, 1 to 24 inches per minute
- Dip assembly supports multiple boards per dip cycle
- Removable tank for fast, easy coating changes
- Independently adjustable immersion and withdrawal rates

SCS P3201 Optional Features

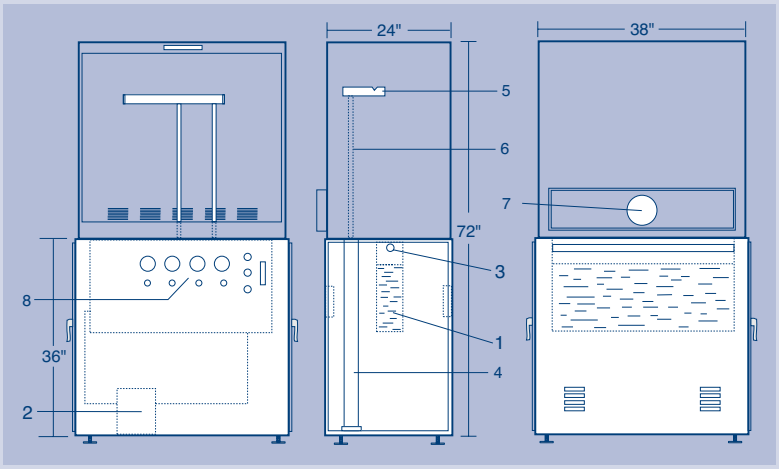
- Circulation pump and overflow dam
- Stainless steel piping for circulation pump in lieu of brass piping
- 225 micron coating filter (circulation pump option must be purchased with this option)
- Dip dwell (0-30 seconds)
- Tank air blanket and flow meter
- PTFE coated tank
- Exhaust hood enclosure

SCS P3201 Specifications

Unit size (W x D x H)	38 x 25.75 x 39 in. / 96.5 x 65.41 x 99 cm
Tank size (L x W x D)	27 x 7 x 19 in. / 68.6 x 17.78 x 48.3 cm
Tank Drain	0.5 in. / 1.27 cm
Immersion capacity	Up to 13 in. (33.0 cm), with 6 in. (15.2 cm) freeboard
Immersion rate	1 to 24 in./min. / 2.54 to 61 cm/min.
Withdrawal rate	1 to 24 in./min. / 2.54 to 61 cm/min.
Dip depth	Adjustable by sensor position
Actuation	Compressed air at 15 cfm / 80 psi (25.5 m^3/hr/5.5 bars), oil and moisture free
Exhaust	200 CFM (340 m^3/hr) with optional hood enclosure

SCS P3201 Dimensions

1. **Dip tank**
2. **Circulation pump** (optional)
3. **Gas blanket manifold** (optional)
4. **Hydraulic actuation cylinder**
5. **Cross rod support rack**
6. **Lift travel control bar**
7. **Exhaust plenum**
8. **Control panel**



Innovative solutions for advanced technologies.

Specialty Coating Systems leads the industry in providing Parylene solutions for its global customers' advanced technologies. SCS is a direct descendant of the companies that originally developed Parylene, and we have more than 40 years of experience and expertise that we leverage on every project for our customers—from the initial planning phases, to advanced engineering, to the development of application processes.

Our worldwide resources include highly experienced sales engineers, some of the world's foremost Parylene specialists, and expert manufacturing personnel, working in eleven state-of-the-art coating facilities around the globe. In addition to Parylene coating services, we design and manufacture industry-leading Parylene deposition systems; liquid spray, dip and spin coating systems; ionic contamination test systems; and UV and thermal cure units. Our equipment is used in environments that range from university and research labs to high-volume production applications.

Our extensive and proactive approach to production and quality requirements—testing, validating, documenting and processing—provides our customers peace of mind and minimizes their resources needed to meet the most challenging industry specifications and quality requirements.

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061 12/11

SPECIALTY COATING SYSTEMS™

SCS PL3201 Dip Coater

SCS PL3201 Dip Coater

The SCS PL3201 is a compact, precision dip coating system for table-top coating of printed circuit boards in a production setting. This portable system can be used to apply urethane, epoxy, silicone and acrylic coatings, as well as photoresists and solder mask materials.

The efficient PL3201 dip coating system uses a stationary tank and an air-over-oil cylinder mechanism to move circuit assemblies into and out of the coating. It meets NFPA-79 conformace for Class I, Group D explosion-proof standards for a Division I environment.

The SCS PL3201 makes efficient use of coatings and ensures complete coverage on both sides of coated assemblies. Accurate immersion control eliminates the need to mask areas that remain above the dip line.

- Powered by compressed air-over-oil cylinder for smooth, explosion-proof operation
- Adjustable immerse and lift speeds, 1 to 24 inches per minute
- Dip assembly supports multiple boards per dip cycle
- Removable tank for fast, easy coating changes
- Independently adjustable immersion and withdrawal rates

SCS PL3201 Optional Features

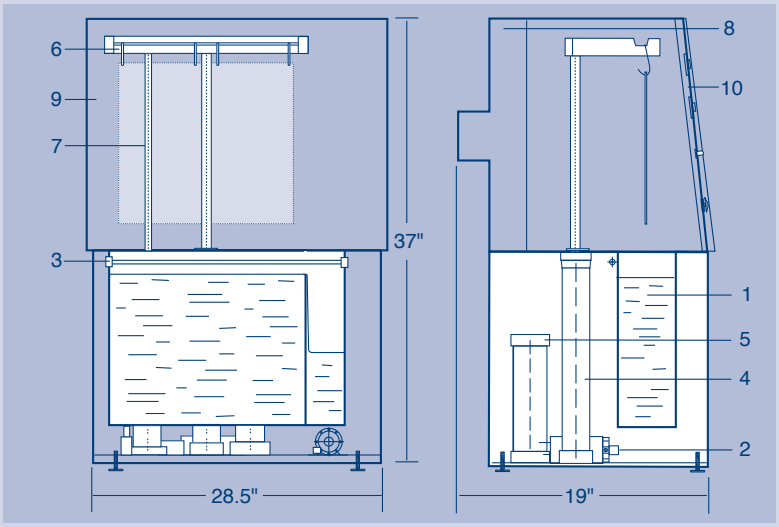
- Circulation pump and overflow dam
- Dip dwell (0-30 seconds)
- Tank air blanket and flow meter
- PTFE coated tank

SCS PL3201 Specifications

Unit size (W x D x H)	28.5 x 19 x 37 in. / 72.4 x 48.2 x 94 cm
Tank size (L x W x D)	18 x 4 x 14 in. / 45.72 x 10.16 x 35.56 cm
Tank Drain	0.5 in. / 1.27 cm
Immersion capacity	Up to 8 in. (20.3 cm), with 6 in. (15.2 cm) freeboard
Immersion rate	1 to 24 in./min. / 2.54 to 61 cm/min.
Withdrawal rate	1 to 24 in./min. / 2.54 to 61 cm/min.
Dip depth	Adjustable by sensor position
Actuation	Compressed air at 15 cfm / 80 psi (8.49 m^3/hr/5.5 bars), oil and moisture free
Exhaust	200 CFM (340 m^3/hr)

SCS PL3201 Dimensions

1. **Dip tank**
2. **Circulation pump** (optional)
3. **Gas blanket manifold** (optional)
4. **Hydraulic actuation cylinder**
5. **Air-over-oil accumulators** (2X)
6. **Cross rod support rack**
7. **Lift travel control bar**
8. **Exhaust plenum**
9. **Hood**
10. **Control panel**



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SCS PRECISIONCOAT BT

SCS PRECISIONCOAT BT

The Precision**Coat BT** provides accuracy, reliability and flexibility for companies looking to take their manufacturing capabilities to the next level. Choosing which material to use, understanding how it needs to be handled and deciding where it needs to be applied are just a few of the application-specific questions that customers must resolve.

When it comes to applying material in a highly repeatable manner, the Precision**Coat BT** is the solution. Designed for companies who are looking to automate their time-intensive manual coating and dispensing processes or those who would like to have additional coating capacity in their laboratory or on their production floor, the Precision**Coat BT** improves accuracy, productivity and efficiency in a highly reliable, compact unit.

The Precision**Coat BT** applies materials via configurable conformal coating and/or dispense valves (up to two) that move along three axes (x, y and z) with a command accuracy of ±0.0001 inch (0.003 mm) and ±0.003 inch (0.08 mm) repeatability. Its proprietary Windows®-based software platform features a user-friendly interface for ease of programming and system operation.

Additionally, the offline programming feature ensures downtime is kept to a minimum. For maximum flexibility, the system's Cycle Start button initializes the last downloaded profile, which is stored in the controller so a computer need not be present during coating.

Unmatched in the industry, the Precision**Coat BT** achieves consistent application with a high degree of accuracy and repeatability.

INDUSTRIES AND APPLICATIONS

SCS offers the most accurate and dependable coating and dispensing systems for applications where protection from dust, chemicals, moisture, temperature extremes and shock is key. The Precision**Coat BT** applies coatings to substrates in a wide array of industries, including:

- Industrial electronics
- Consumer electronics
- Military
- Aerospace
- Automotive
- Maritime
- Power management devices
- Medical
- Renewable energy
- LED lighting

PRECISIONCOAT BT PRODUCT BENEFITS

- Ease of programming
- High accuracy and repeatability
- Up to two configurable valves
- Profile sharing between multiple coating systems
- Standard interior LED lighting with optional black LED inspection light
- Adjustable rail fixture
- Variety of coating pots available
- Laser programming aid
- Optional teaching camera
- Optional purge cups
- Safety interlocks

SCS
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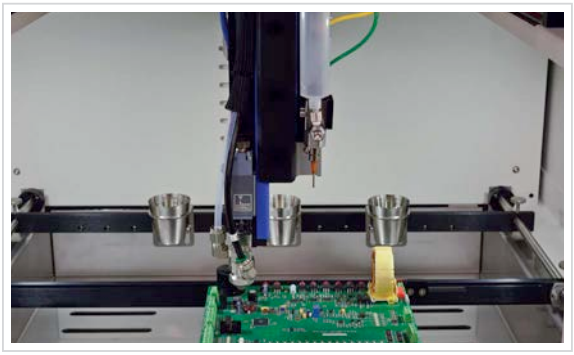
A KISCO Company

COMPATIBLE MATERIALS

The Precision**Coat BT**'s proprietary Windows®-based software gives you total control over the coating process, ensuring repeatable application of virtually any material, including:

- Acrylics
- Silicones
- Epoxies
- Urethanes
- Latex
- Adhesives
- Thermal pastes and greases
- Sealants
- Solder mask
- RTVs

SCS PRECISION**COAT BT** FEATURES



Adjustable Fixture

THE SCS ADVANTAGE

In today's competitive environment, flexibility and accuracy are critical. The SCS Precision**Coat** family gives customers both. In addition to industry-leading systems, SCS cares for customers with best-in-class service and support. A knowledgeable and friendly team assists with application engineering, custom designs, product demonstrations and world-class technical support. SCS works closely with the customers to create a custom solution for their specific need by drawing on a variety of features and options to meet any requirement.

With over 45 years of experience in conformal coatings, SCS' industry-leading systems, features and resources are ready to meet and exceed your expectations.

PRECISION**COAT BT** SPECIFICATIONS

Minimum substrate size	1.5 x 2 in / 3.81 x 5.08 cm
Maximum substrate size One Valve Two Valves	 14 x 14 in / 35.6 x 35.6 cm 11.8 x 14 in / 30.0 x 35.6 cm
Maximum substrate height	4.75 in / 12.07 cm (above board for single valve system) 3.25 in / 8.26 cm (above board for dual valve system) 4 in / 10.2 cm (below board for a single or dual valve system)
Repeatability	+/- 0.003 in / 0.08 mm
Electrical	120 VAC, 5A (alternate electrical configurations available)
Exhaust requirements	150 CFM exhaust with 4 in / 10.2 cm duct
Air supply	5 CFM @ 80 psi dry air (some moisture-sensitive materials may require use of nitrogen instead of clean, dry air)
System dimensions (W x D x H)	35.4 x 37.9 x 30.6 in / 90.0 x 96.3 x 77.7 cm
Weight	240 lb / 109 kg

INNOVATIVE SOLUTIONS FOR ADVANCED TECHNOLOGIES.

With over 45 years of experience and locations around the world, Specialty Coating Systems is the global leader in Parylene conformal coatings and technologies. This extensive coating and application experience is leveraged on each and every customer project, including the industry-leading systems that SCS designs and manufactures. From conformal coating, dispensing and cure systems to ionic contamination test systems, SCS equipment is used in environments that range from university and research labs to high-volume production facilities. SCS' proactive approach to production and quality requirements—testing, validating, documenting and processing—enables customers and their advanced technologies to meet the most challenging industry specifications and quality requirements.

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SPECIALTY COATING SYSTEMS™

SCS Precisioncoat V
Conformal Coating

Conformal coatings are the first line of defense for your product and your reputation. The SCS Precisioncoat V provides more than a dependable layer of protection, it's a total system solution that ensures accuracy, repeatability and high throughput for a wide range of automated material applications.

Industries and Applications

SCS offers the most accurate and dependable conformal coating system for any industrial application where protection from dust, chemicals, moisture, shock or temperature extremes is key. The Precisioncoat applies materials to a variety of substrates (e.g., LED and solar panels, circuit boards, sensors, etc.) across industries, including:

- Industrial electronics
- Consumer electronics
- Military
- Aerospace
- Automotive
- Maritime
- Power management devices
- Medical electronics
- Renewable energy
- LED lighting
- Solar

SCS Precisioncoat V

Compatible Materials

No matter what material you're working with, the Precisioncoat's proprietary Windows®-based software gives you total control over the coating process, ensuring consistent application. The Precisioncoat is compatible with a variety of materials, including:

- Acrylics
- Silicones
- Epoxies
- Urethanes

In a competitive environment, you have to be fast, but you also have to be accurate. The SCS Precisioncoat gives you both.

The Precisioncoat Advantage

In a competitive environment, you have to be fast, but you also have to be accurate. The SCS Precisioncoat gives you both. Its conformal coating valves move smoothly along the direct-drive, three-axis system, with an option to add fourth and fifth axes for tilt and rotation capabilities. The system's multi-valve technology allows for the application of dots, lines, fills, glob tops and spray coat areas with the following capabilities:

- Two-part mixing dispense
- Dot dispense
- Jetting
- Radial material application
- One and two part metering
- Flow coating
- Low to medium speed solder paste dispensing
- Atomizing spray
- Non-atomized filming

But what truly sets the Precisioncoat apart is its proprietary Windows-based software, with which you can customize each program based on material and pattern. Users achieve consistent application with a high degree of accuracy and repeatability. And with its offline-programming feature, downtime is kept to a minimum.

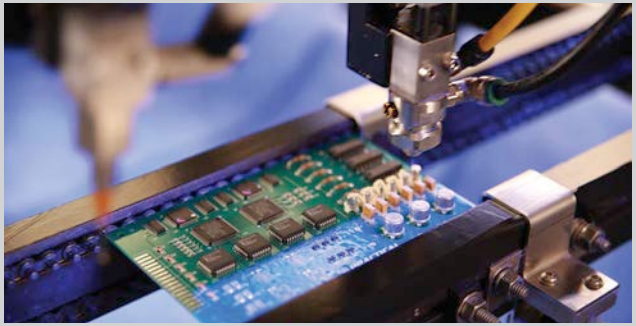
Key features and benefits

- Ease of programming
- High accuracy and repeatability
- High throughput
- Multi-valve technology
- Profile sharing between multiple coating systems
- SMEMA transfer protocols
- Safety interlocks

Conformal Coatings Guide[1]

	Acrylic	Urethane	Epoxy	Silicone
Component Stress	High	High	High	Low
Cost	Low	Low	Medium	High
Repair	Moderate	Difficult	Difficult	Easy
Humidity resistance	Good	Excellent	Good	Excellent
Solvent resistance	Excellent	Good	Excellent	Good
Corrosives resistance	Good	Excellent	Excellent	Good
Abrasion resistance	Moderate	Excellent	Excellent	Moderate
Thermal cycling	Moderate	Good	Good	Excellent
Dielectric properties	Good	Excellent	Excellent	Fair
Transparency	High	Low	Low	Low

1. IFT009E, July 2012, BCC Research, www.bccresearch.com



Optional features

- 5 axes programmable tilt and rotate
- Vision system
- Coating flow meter
- Needle calibration system
- Programmable atomization pressure
- Programmable coating pot pressure
- Material temperature control system
- Laser height mapping
- Valve on/off during continuous motion

For a full list of available features and options, contact SCS.

The SCS Difference

Specialty Coatings Systems is a leader in the industry with not only the equipment needed for the best in processing and control, but a knowledgeable technical staff, ready to support customers with application support, custom designs, system demonstrations and world class technical support. We work closely with customers to create a custom solution for their specific application, drawing on a variety of features and options to meet any requirement.

SCS Precisioncoat V Specifications

Minimum substrate size	2 x 2 in / 5.08 x 5.08 cm
Maximum substrate size	20 x 20 in / 50.8 x 50.8 cm
Maximum substrate height	5 in / 12.7 cm above and below pass line
Electrical	120 VAC, 6A; 230 VAC, 3.5A
Exhaust requirements	150 CFM exhaust with 6 in / 15 cm duct
Air supply	10 CFM @ 80 psi dry air (some moisture-sensitive materials may require use of nitrogen instead of clean, dry air)
System dimensions (W x D x H)	39.0 x 49.5 x 67 in / 99.1 x 125.7 x 170.2 cm
Weight, skidded	820 lb / 372 kg

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SPECIALTY COATING SYSTEMS™

SCS Precisioncoat V
Dispensing

The type of material you are using, how it needs to be handled, where it needs to be applied, and how quickly it cures are application-specific questions that must be resolved by SCS customers. In many cases, material dispensing is a highly manual process, costing manufacturers both time and money. The SCS Precisioncoat V meets all of your dispensing requirements in one easy-to-program, customizable solution.

SCS Precisioncoat V

Industries and Applications

The SCS Precisioncoat applies a wide range of materials via the process your application requires, while delivering accuracy, repeatability and greater throughput. From standard SMT boards to custom semiconductor assemblies and MEMS, a wide range of industries have found value in automated dispensing technologies, including:

- Industrial electronics
- Consumer electronics
- Military
- Aerospace
- Automotive
- Medical electronics

Compatible Materials

The SCS Precisioncoat offers completely customizable dispensing solutions for a full range of materials, such as:

- Conformal coatings
- Latex
- Epoxies
- RTV
- Adhesives
- Thermal pastes and greases
- Sealants
- Solder mask
- And more...

In the world of material dispensing, one size does not fit all. But one system can.

The Precisioncoat Advantage

In the world of material dispensing, one size does not fit all. But one system can. The SCS Precisioncoat offers a wide range of configurations to cover a full range of material dispensing requirements. Its configurable dispense valves move smoothly along the direct-drive, three-axis system. Optional fourth and fifth axes can be added for tilt and rotation capabilities.

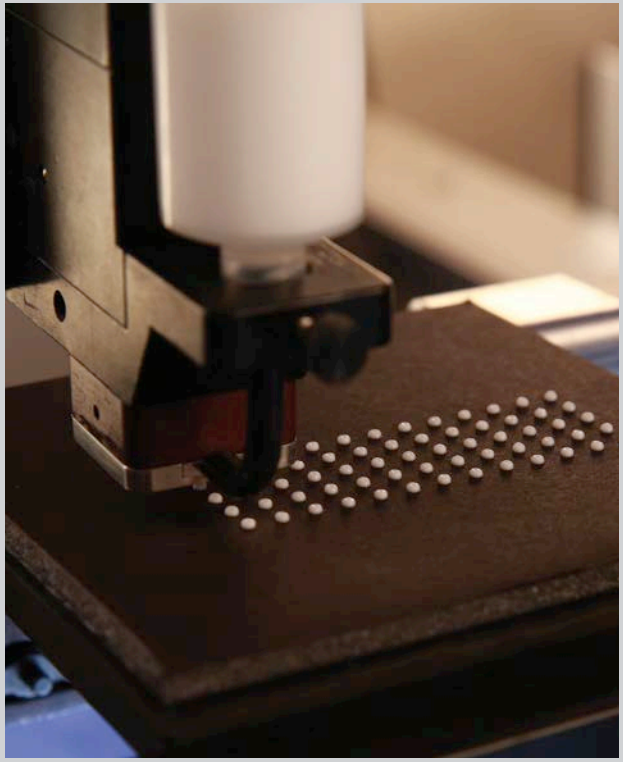
Multi-functional, multi-valve technologies allow for the application of dots, lines, fills, glob tops and spray coat areas, all within one system. The following dispense valves are available and often interchangeable on SCS Precisioncoat systems:

- Two part mixing dispense
- Dot dispense
- Jetting technology
- Radial material application
- One and two part metering
- Flow coating
- Low to medium speed solder paste dispensing

But what sets the Precisioncoat apart is its proprietary Windows®-based software, which makes the application process completely programmable and customizable. With the Precisioncoat, you have a configurable system that offers the exact dispensing capabilities you need regardless of viscosity, material life or cure time. Accuracy and repeatability are assured without the downtime associated with multiple systems or manual labor.

Key features and benefits

- Ease of programming
- High accuracy and repeatability
- High throughput
- Multi-functional platform
- Multiple valve technologies
- Ability to customize applications
- Profile sharing between multiple coating systems



Optional features

- 5 axes programmable tilt and rotate
- Vision system
- Coating flow meter
- Needle calibration system
- Programmable coating pot pressure
- Material temperature control system
- Laser height mapping
- Valve on/off during continuous motion

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SCS Precisioncoat V Specifications

Minimum substrate size	2 x 2 in / 5.08 x 5.08 cm
Maximum substrate size	20 x 20 in / 50.8 x 50.8 cm
Maximum substrate height	5 in / 12.7 cm above and below pass line
Electrical	120 VAC, 6A; 230 VAC, 3.5A
Exhaust requirements	150 CFM exhaust with 6 in / 15 cm duct
Air supply	10 CFM @ 80 psi dry air (some moisture-sensitive materials may require use of nitrogen instead of clean, dry air)
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SPECIALTY COATING SYSTEMS™

SCS Precisioncoat V
Potting

Potting and encapsulation have always been labor-intensive processes. High accuracy and repeatability come at the expense of time and, ultimately, your bottom line. The SCS Precisioncoat V revolutionizes the process of potting and encapsulation. With systems designed to meet customer requirements, the Precisioncoat potting platform automates the dispensing of materials, greatly reducing the amount of time and cost associated with high-volume applications.

SCS Precisioncoat V

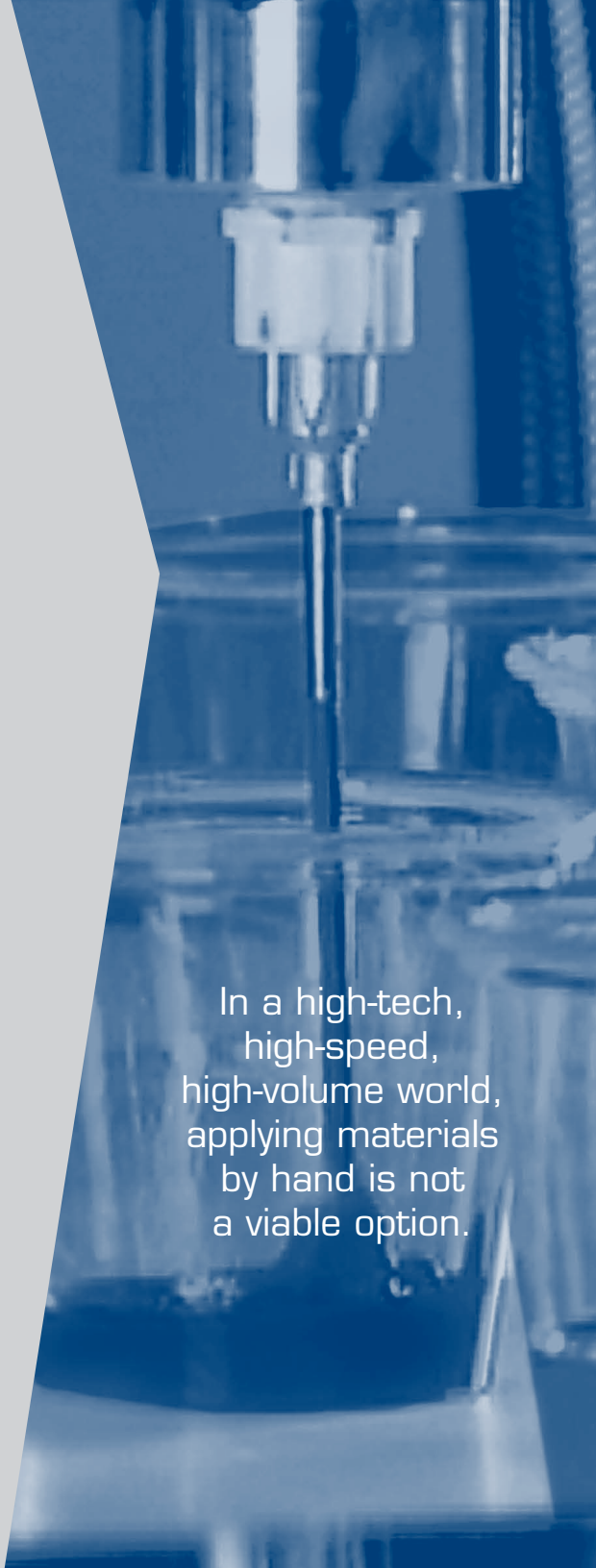
Industries and Applications

Wherever protection from shock, vibration, moisture or corrosion is crucial, the SCS Precisioncoat offers a potting and encapsulation solution that is as efficient as it is accurate. The Precisioncoat can apply materials onto or within a variety of substrates, including electronic assemblies, lighting assemblies and fixtures, automotive assemblies and wire harnesses. These applications, and more, are protected throughout a variety of industries, including:

- Industrial electronics
- Consumer electronics
- LED lighting
- Solar
- Renewable energy
- Power management devices
- Military
- Aerospace
- Automotive
- Medical electronics

Compatible Materials

The highly viscous nature of potting materials presents a unique challenge in the application process. The SCS Precisioncoat offers precise dispensing options for a wide range of potting materials (e.g., epoxies, silicones, urethanes, etc.) and mix ratios.



In a high-tech, high-speed, high-volume world, applying materials by hand is not a viable option.

The Precisioncoat Advantage

In a high-tech, high-speed, high-volume world, applying materials by hand is not a viable option. The Precisioncoat's potting platform gives customers a dispensing system that is tailored to meet their specific dispensing needs. The system offers a wide range of dispensing heads, which move smoothly along the direct-drive three-axis system, to apply a full range of potting materials and encapsulants. Optional fourth and fifth axes can be added for tilt and rotation functionality.

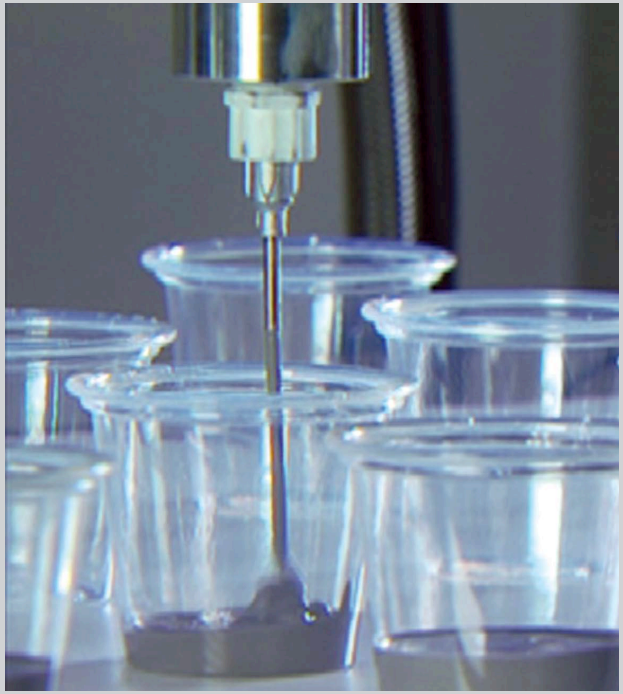
The Precisioncoat's valve technology allows for the application of dots, lines, fills and glob tops. Additional capabilities of the potting platform include:

- Two part mixing dispense
- Dot dispense
- One and two part metering
- Automatic reservoir refilling
- Material weigh stations
- Large volume pumping systems
- Small-volume precision metering systems
- Multiple valve configurations

Proprietary Windows®-based software truly sets the Precisioncoat apart, making the application process completely programmable and customizable. The Precisioncoat gives users a configurable system that applies materials exactly where you need them. Accuracy and repeatability are assured with high throughput and without the time and risk of manual labor.

Key features and benefits

- Ease of programming
- Accuracy and repeatability of dispense volumes
- High throughput
- Multiple dispensing and mixing solutions
- Variety of pumping systems available
- Ability to customize applications
- Profile sharing between multiple coating systems



Optional features

- 5 axes programmable tilt and rotate
- Vision system
- Coating flow meter
- Material temperature control system
- Laser height mapping
- Valve on/off during continuous motion

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SCS Precisioncoat V Specifications

Minimum substrate size	2 x 2 in / 5.08 x 5.08 cm
Maximum substrate size	20 x 20 in / 50.8 x 50.8 cm
Maximum substrate height	5 in / 12.7 cm above and below pass line
Electrical	120 VAC, 6A; 230 VAC, 3.5A
Exhaust requirements	150 CFM exhaust with 6 in / 15 cm duct
Air supply	10 CFM @ 80 psi dry air (some moisture-sensitive materials may require use of nitrogen instead of clean, dry air)
System dimensions (W x D x H)	39.0 x 49.5 x 67 in / 99.1 x 125.7 x 170.2 cm
Weight, skidded	820 lb / 372 kg

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SPECIALTY COATING SYSTEMS™

SCS Precision UVC

The Precision UVC cure unit offers full-spectrum UV curing in perfect integration with the SCS Precisioncoat. Coupled together, components move from the Precisioncoat to the Precision UVC automatically and the curing cycle is controlled by the coater. This continuous operation offers increased output and minimal downtime. The Precision UVC, when controlled by a computer, can also operate independent of a coating system.

SCS Precision UVC

The Precision UVC has a full spectrum mercury UV source with three intensity settings and covers a cure zone 24 inches wide (61 cm) at an intensity of 300 W/in (118 W/cm). The unit cures a wide variety of UV curable coatings as well as inks, solder masks and other materials. The Precision UVC has optional automatic conveyor-width adjustment.

SCS Precision UVC Cure Unit Features

- Three selectable power levels, from 125 W/in to 300 W/in (40 W/cm to 118 W/cm)
- 2-in to 24-in process width
- 4-in top and bottom pass-through heights
- 24-in pin chain conveyor with automated width adjustment option
- Optional second UV cure zone increases throughput capacity
- SMEMA compatibility

Safety and Compliance

- Emergency stop switches
- Exhaust and panel safety interlocks

Now available with
Heraeus
Fusion UV lamps!

SCS PRECISION UVC

SCS Precision UVC Specifications

UV source	Tubular, full spectrum mercury lamp
Arc length	25 in / 63.5 cm
Input power	7,500 W at 300 W/in / 118 W/cm
Optics	Interfocused, air-cooled reflector module
UV flux	860 W/ft^2 / 926 mW/cm^2
UV path length	9.5 in / 24.13 cm in direction of conveyor travel
UV efficiency	UV radiation = 22% of lamp power
Conveyor type	Variable width, extended pin chain
Conveyor width	2 to 24 in / 5.08 to 61 cm
Drive system	2 to 20 f/min / 0.61 to 6.1 m/min
Substrate width	2 to 24 in / 5.08 to 61 cm
Maximum substrate height	4 in / 10.2 cm above and below pass line
Electrical	220 – 240 VAC, 50/60 Hz, 1Ø, 9.5 KW (alternate electrical configurations available)
Exhaust requirements	625 cfm / 1,062 m^3/h
Dimensions (W x D x H)	95 x 46 x 62 in / 214 x 117 x 157 cm
Weight	700 lb / 318 kg

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SPECIALTY COATING SYSTEMS™

SCS Precisioncure TC

The SCS Precisioncure TC offers manufacturers reliability and efficiency in a robust convection thermal cure system. The easy-to-use system delivers highly efficient, consistent heat transfer throughout the entire curing process. Designed for maximum performance, the Precisioncure TC features a single chamber design and is available with 3 or 7 heating zones to cure a wide variety of materials. Each zone is heated via top forced convection technology and features independent closed-loop blower speed control, which ensures stable thermal performance.

The Precisioncure TC is fully automated, with programmable process set-up and a conveyor that seamlessly mates with the SCS Precisioncoat for coating and curing. The system features an electromechanical power lift hood for access to the process chamber, and removable or hinged panels for easy access to all major assemblies for maintenance.

SCS Precisioncure TC

SCS Precisioncure TC Features

- High-volume forced convection heating technology
- 2-in to 20-in process width
- 4-in top and bottom pass-through heights
- User-friendly, Windows®-based user interface with data logging capabilities
- Electromechanical power lift of hood for process chamber access
- Electromechanical power lift of process chamber for chamber access
- Full length process cavity
- Auto-adjust, extended pin-chain conveyor
- Width adjust encoders continually track movement
- Independent closed-loop blower control
- Continuous monitoring and verification feature
- SMEMA conformance

Safety and Compliance

- Four emergency stop switches
- Conforms to NFPA 79
- CE compliance
- UL listing

SCS Precisioncure TC Specifications

Model Numbers	Model 2331	Model 2341	Model 2741
Number of Zones	3 zones	3 zones	7 zones
Process Width	Minimum: 2.0 in / 5.1 cm Maximum: 20 in / 50.8 cm	Minimum: 2.0 in / 5.1 cm Maximum: 20 in / 50.8 cm	Minimum: 2.0 in / 5.1 cm Maximum: 20 in / 50.8 cm
Process Height	4.0 in / 10.1 cm, above and below	4.0 in / 10.1 cm, above and below	4.0 in / 10.1 cm, above and below
Process Chamber Length	83 in / 210.8 cm	105.7 in / 268.5 cm	105.7 in / 268.5 cm
Heat Source	Forced convection	Forced convection	Forced convection
Operating Temperature	Up to 100°C (212°F)	Up to 100°C (212°F)	Up to 350°C (662°F)
Heater Power Rating	3 kW per active heating zone	3 kW per active heating zone	4 @ 3 kW, 3 @ 5 kW per active heating zone
Zone Dimensions	Length: 13.6 in / 34.5 cm each Width: 29.1 in / 73.9 cm each	Length: 13.6 in / 34.5 cm each Width: 29.1 in / 73.9 cm each	Length: 13.6 in / 34.5 cm each Width: 29.1 in / 73.9 cm each
Conveyor Speed	5 to 70 in/min / 13 to 178 cm/min	5 to 70 in/min / 13 to 178 cm/min	5 to 70 in/min / 13 to 178 cm/min
Conveyor Type	Auto-adjust, variable width, extended pin chain	Auto-adjust, variable width, extended pin chain	Auto-adjust, variable width, extended pin chain
Pin Length	0.19 in / 0.48 cm Optional: 0.12 in / 0.30 cm	0.19 in / 0.48 cm Optional: 0.12 in / 0.30 cm	0.19 in / 0.48 cm Optional: 0.12 in / 0.30 cm
Electrical	208-240 VAC, 3Ø, 50/60 Hz	208-240 VAC, 1Ø, 50/60 Hz	440-480 VAC, 3Ø, 60 Hz
Exhaust Requirements	Load-end: Minimum 150 CFM / 255 m^3/hr Unload-end: Minimum 300 CFM / 510 m^3/hr	Load-end: Minimum 150 CFM / 255 m^3/hr Unload-end: Minimum 300 CFM / 510 m^3/hr	Load-end: Minimum 150 CFM / 255 m^3/hr Unload-end: Minimum 300 CFM / 510 m^3/hr
Machine Length	134 in / 350.5 in	191.5 in / 486.3 cm	191.5 in / 486.3 cm
Machine Width	53.8 in / 136.7 cm	53.9 in / 136.7 cm	53.9 in / 136.7 cm
Machine Height	48.9 in / 124.1 cm	48.9 in / 124.1 cm	48.9 in / 124.1 cm

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