SPINCOATING

Photolithography products: Spin coaters, chucks, options and spin stations

Single wafer spin coaters brochure

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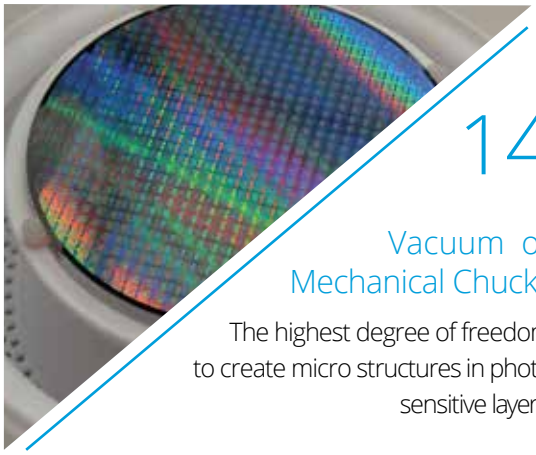

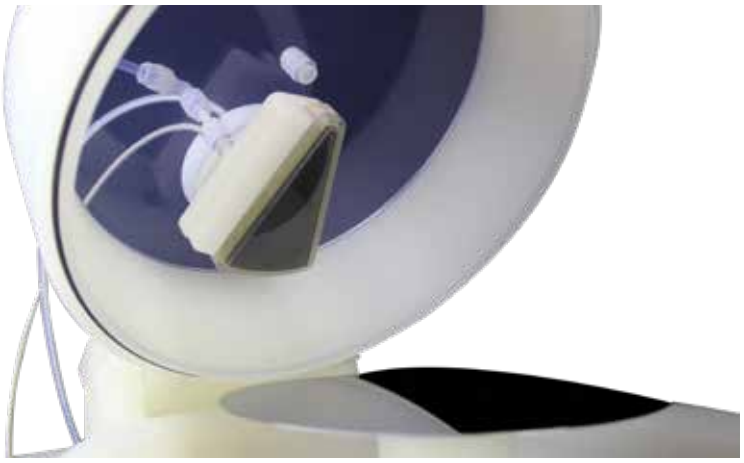

10

Dispense options SPIN150i and SPIN200i

Peristaltic dispense pump is an excellent auto-dispense (low or high volume).

17

Spin Process Station

Reasonable priced platform for wide range of processe.

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www.SPS-Europe.com
www.Spincoating.com

Models

SPIN150i

SPIN200i

System data	SPIN150i	SPIN200i
Housing material:	Natural polypropylene (NPP)***	
Process chamber material:	Natural polypropylene (NPP) or high chemical resistant PTFE (TFM™)	
Interface:	Detachable, full-size touchscreen, glove friendly, IP52, chemical resistant	
External connection:	1 USB port in the controller	
Max. substrate diameter:	160 mm round or 4" x 4" square	260 mm round or 6" x 6" square
Max. process chamber diameter:	202 mm	302 mm
Dimension (desktop version):	274 (w) x 250 (h) x 451 (d) mm	380 (w) x 307 (h) x 559 (d) mm

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POLOS 200 Advanced

POLOS 300 Advanced

System data	POLOS 200 Advanced	POLOS 300 Advanced
Housing material:	Natural polypropylene (NPP)***	
Process chamber material:	Natural polypropylene (NPP) or high chemical resistant PTFE (TFM™)	
Interface:	Detachable, full-size touchscreen, glove friendly, IP52, chemical resistant	
External connection:	1 USB port in the controller	
Max. substrate diameter:	260 mm round or 6″ x 6″ square	360 mm round or 8″ x 8″ square
Max. process chamber diameter:	302 mm	402 mm
Dimension (desktop version):	380 (w) x 307 (h) x 599 (d) mm	430 (w) x 310 (h) x 650 (d) mm

Are you ready for the future?

When it comes to spin process applications, the possibilities are endless. Where today's requirements may stop at a simple clean & rinse program on a 4" substrate, tomorrow's process may require mask cleaning, or a coating step for fragments. The POLOS single wafer processor offers a solution to your current and future applications.

Each individual in fabs, research labs and universities employs different processes. That is why the POLOS Series offers unlimited options to choose from: intuitive programing on the touchscreen controller, freedom to upload and download from a PC (via USB), and access to unlimited programs/steps and graphical representation.

The digital motor speed controller enables accurate acceleration and stable rotations: critical factors for coating uniformity.

The versatile, high-quality, all plastic POLOS single substrate spin processors are specifically designed for R&D and low volume production in the MEMS, semiconductor, PV, microfluidics fields. They are suitable for all typical spin processes: cleaning, rinse/dry, coating, developing and etching. Various models are renowned for their versatility, processing a wide range of substrates from small fragments up to Ø 300 mm substrates.

We use **NPP-H** with α-crystalline properties for our spin processors and chucks. Natural polypropylene offers improved rigidity, in addition to increased toughness. In fact, the level of rigidity measured at 100 °C is twice as high as that of β-nucleated polypropylene. At low temperatures, it displays higher impact resistance than standard NPP-H, thus combining greater functionality with improved safety.

Benefits:

- Finer and more stable alpha crystalline structure
- Superior notched impact strength and enhanced rigidity
- Longer service life
- Improved chemical resistance and superior stress crack resistance

Where the application requires **PTFE,** we use TFM™ 1600. It is superior for use with chemicals compared to standard **PTFE**; its higher material density lowers the chemical absorption rate.

Liners are available in **PET** (Polyethylene terephthalate), 0.5 mm thick, transparent and antistatic (108 - 1010 Ω) to prevent possible static charge build-up in the chamber.

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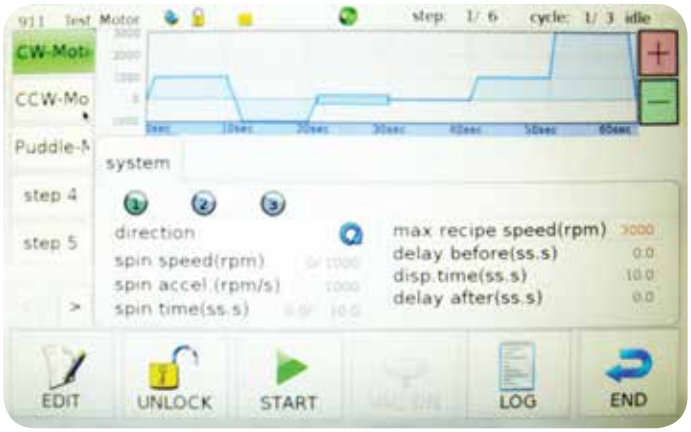
Clear view of your process



Tempered glass lid does not haze or scratch. It remains clear, making it easy to see your process.

CE Certified designed for Your Safety

**Depending on substrate size and chuck type*

System Benefits:

- High speed and acceleration up to 0 - 12,000 rpm in 0.3 sec*
- Maximum acceleration of 30,000 rpm/s.
- Detachable touch screen control panel for use outside a glove box.
- Programmable CW & CCW rotation for specialty processes such as “puddle” develop and/or etch.
- Full-engineered plastics only, high quality seamless fabrication.

Durable hinges secure the lid at an optimum angle for **easy** access, and for operator **safety,** electromagnetically lock until the end of process, 0 rpm or in of the event of a power failure.

V-Lid ensures that residual chemicals on the lid run safely into the system drain.

Syringe holder & diffuser for **N_2 purge** enable a uniform purge with reduced air turbulence in the chamber.

Spin Processors SPIN150i - SPIN200i

The SPIN150i & SPIN200i spin processors are advanced systems that offer precise, repeatable process control. An aerodynamically efficient chamber enhances uniformity, while the natural polypropylene or PTFE construction ensures a metal-free, contamination-free process area that is easy to clean.

The SPIN150i & SPIN200i are small-sized footprint systems with the capacity for up to 6" wafers (SPIN150i), or up to 8" wafers (SPIN200i). They are pre-configured with a nitrogen purge nozzle/syringe holder. The SPIN150i comes with a chuck and fragment adapter, which will hold a wide range of substrates, from small pieces (minimum Ø 10 mm area) up to 6".

- Programmable CW & CCW rotation
- Spin speed 0 rpm - 12,000 rpm, accuracy +/- 0.1 rpm
- Acceleration / deceleration 1 - 30,000 rpm/sec, selectable per step

SPIN150i

SPIN200i

The SPIN200i comes with a chuck that will hold from 4" to 8" wafers - or can alternatively be specified to have the same chuck and adapter as the SPIN150i model. (Chucks for 6" wafers and below can be used on either model.)

The SPIN150i & SPIN200i offer exceptional value and capability: precision speed range of up to 12,000 rpm, programmable in 1 rpm, for CW, CCW rotation (ideal for "puddle" develop), and per-step acceleration of max. 30,000, also programmable in 1 rpm, to cover any process requirement. Time: from xx h to 0.1 sec. It is programmed through an easy-entry color touchscreen. The self-explanatory icons make it easy to operate even for new users.

A quality choice for the long-term, the SPIN150i & SPIN200i are designed and manufactured in Germany.

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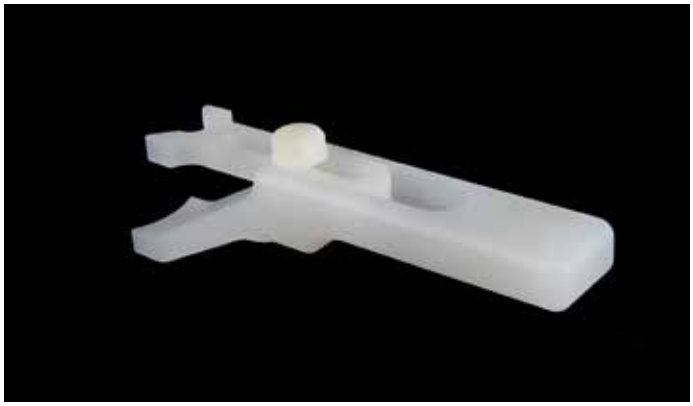
Specifications SPIN150i - SPIN200i

Specifications	SPIN150i	SPIN200i
Available number of programs:	Unlimited*	
Steps per program:	Unlimited*	
Spin speed:*	0 - 12,000 rpm** +/-1 rpm/sec.	
Spin speed accuracy:	± 0.1 rpm **	
Spin rotational direction:	Clockwise, counter clockwise and puddle	
Max. acceleration:	30,000, programmable in 1 rpm	
Spin time:	from xx h to 0.1 sec.	
Free programmable outputs:	3 pcs, relays, nominal switching capacity 0.5 A /125 VAC - 0.3A / 60 VDC	
System data		
Housing material:	Natural polypropylene (NPP)***	
Process chamber material:	Natural polypropylene (NPP) or high chemical resistant PTFE (TFM™)	
Interface:	Detachable, full-size touchscreen, glove friendly, IP52, chemical resistant	
External connection:	1 USB port in the controller	
Max. substrate diameter:	160 mm round or 4" x 4" square	260 mm round or 6" x 6" square
Max. process chamber diameter:	202 mm	302 mm
Dimension (desktop version):	274 (w) x 250 (h) x 451 (d) mm	380 (w) x 307 (h) x 559 (d) mm
Shipping weight:	14 kgs	20 kgs
Shipping dimensions:	600 x 380 x 360 mm	680 x 580 x 480 mm
Requirements		
Voltage:	100 - 120 VAC / 200 - 240 VAC 50/60 Hz (auto select) Max. 500W	
Power consumption:	5 A / 2.5 A	
Max. current:	- 65 kPa (-19 inHg), ≥ 80 LPM	
Vacuum:	Tube OD Ø 8 mm	
Motor purge gas:	20 - 50 kPa, 2-5 L/min, Tube OD Ø 6 mm	
Drain connection:	1" M-NPT	

* Considering additional capability of standard unit such as USB backup, recipe cycling, PC software etc.
** Measured without substrate, limitations may apply depending on chuck used and substrate specification.
*** NPP-H with α-crystalline properties.

Options SPIN150i - SPIN200i

Foot Switch
For hands-free usage; controlling start/stop function, vacuum activation and lid functions.

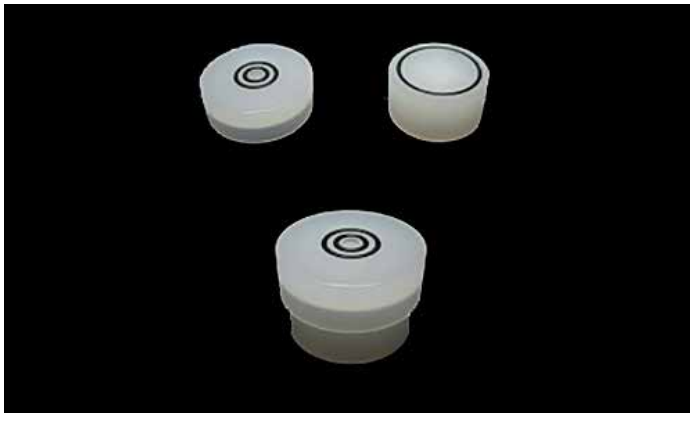


Centering Tool
Easy to use centering tool is adjustable for different substrate sizes.

Corrugated Drainhose and Connector
In NPP, including the connection to the drainport.

Vacuum Pump
The vacuum pump is quiet and reliable.

Liner Set
Liners are available in PET (Polyethylene terephthalate). 0.5 mm thick, transparent, antistatic (108 - 1010 Ω) to prevent possible build-up of static charge in the chamber.



Small fragement adapter
Additional chucks or small fragment adapters (see page 16 for full range.)

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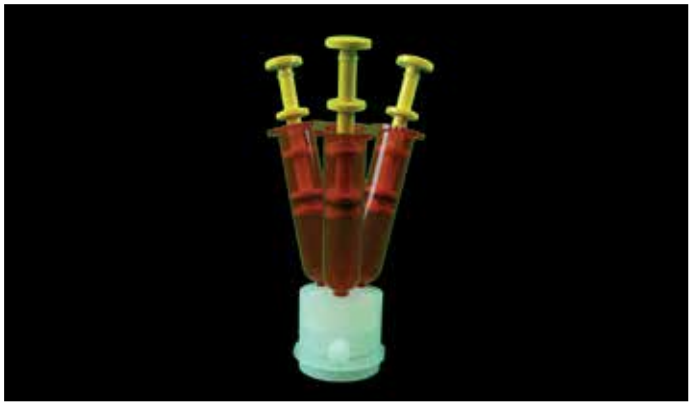
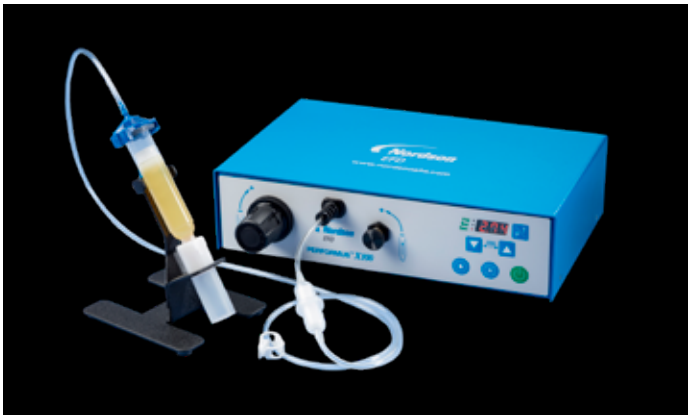
Dispense options SPIN150i - SPIN200i

Manual & Semi-Auto Dispense (Syringe Type)

Syringe Holder Starter Kit
Consists of several 30 cm3 dispense barrels, needles and plungers.



Central Dispensing Syringe Holder
For single or triple syringes, with integrated N_2 diffuser.



Performus™ X Dispense Unit 0 - 7 bar or 0 - 1 bar
Can be mounted in the syringe holder, and connected to one of the 3 programmable dry contacts.

Features:

- Teach function
- Timed or steady operation
- Vacuum control to keep thin fluids from dripping between cycles
- Digital time/pressure display
- Metal chassis that also acts as a Faraday cage to improve EMI/RFI protection
- Universal power supply for use worldwide

Opus® Dispenser
The bottle dispenser is electronically controlled using the external control module; motorized volume dispensing.

Peristaltic dispense pump
Is an excellent auto-dispense (low or high volume. It is a "Plug & Play" unit which is supplied ready to connect to the SPIN series spin coaters and automate your resist or chemical dispense.

POLOS Advanced 200 - 300

The Polos Advanced Series allows the user to either dispense manually through the syringe, or use the optional manifold with a selectable valve for dispensing one (1) chemical from the dispense vessel (DV), DI water or N_2.

- Automatic sequential or parallel chemical dispense
- Up to 6 spray nozzles
- Each programmable independently

200 mm

300 mm

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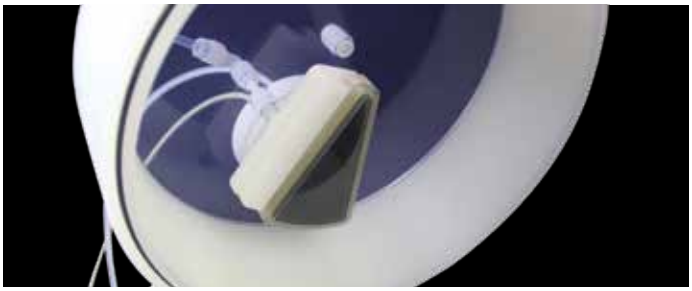
Options POLOS Advanced

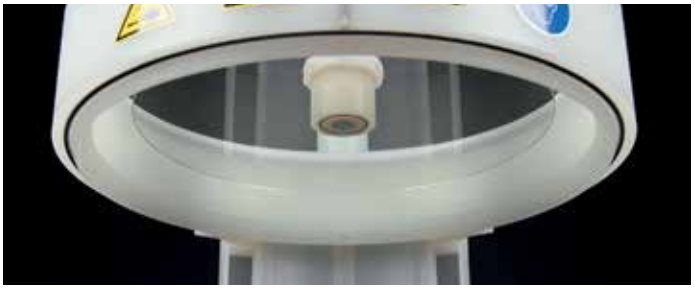
EBR (Edge Bead Removal)
0.15 mm jet spray for accurate pointing of chemical dispense.

Auto Dispense Lines
Full PTFE dispense vessel automated injector line.

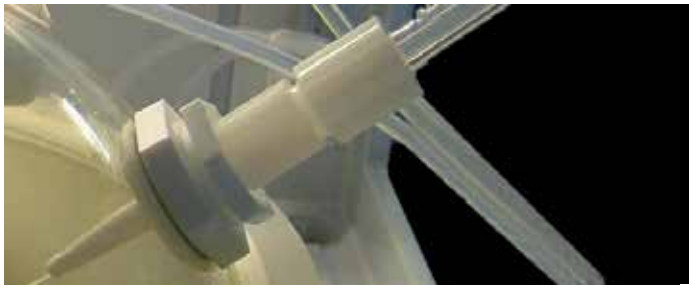


MegPie
The sapphire MegPie is a single-wafer megasonic transducer used for cleaning and sonochemical processing.

BSR (Back Side Rinse)
With adjustable position and spray angle.



Static Barrier Plate
With adjustable distance settings from the substrate for better coating uniformity.



Jet Spray injector
For accurate dispensing of chemicals, with adjustable dispensing position.

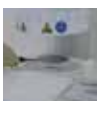
Corrugated Drainhose, Drain Tank and Connector
In the NPP, including the connection to the drainport.

Vacuum Pump
The vacuum pump is quiet and reliable.

Specifications POLOS Advanced

Specifications	POLOS 200 Advanced	POLOS 300 Advanced
Available number of programs:	Unlimited*	
Steps per program:	Unlimited*	
Spin speed:*	0 - 12,000 rpm** +/-1 rpm steps	
Spin speed accuracy:	± 0.1 rpm **	
Spin rotational direction:	Clockwise, counter clockwise, puddle	
Max. acceleration:	30,000 rpm/sec**	
Free programmable outputs:	3 dry relays, nominal switching capacity 0.5A /125 VAC - 0.3A / 60DC	
	Up to 16 digital input, 16 digital output, 4 analog input,	
	4 analog output (with optional IO modules)	
System data		
Housing material:	Natural polypropylene (NPP)***	
Process chamber material:	Natural polypropylene (NPP) or high chemical resistant PTFE (TFM™)	
Interface:	Detachable, full-size touchscreen, glove friendly, IP52, chemical resistant	
External connection:	1 USB port in the controller	
Max. substrate diameter:	260 mm round or 6" x 6" square	360 mm round or 8" x 8" square
Max. process chamber diameter:	302 mm	402 mm
Dimension (desktop version):	380 (w) x 307 (h) x 599 (d) mm	430 (w) x 310 (h) x 650 (d) mm
Shipping weight:	20 kgs	32 kgs
Shipping dimensions:	680 x 580 x 480 mm	780 (w) x 620 (h) x 580 (d) mm
Requirements		
Voltage:	100 - 120 VAC / 200 - 240 VAC 50 / 60 Hz (auto select) Peak 1800 W	
Power consumption:	10 A / 8 A	
Max. current:	- 80 kPa (-24 inHg), ≥ 80 LPM Tube OD Ø 8 mm	
Vacuum:	20 - 50 kPa, 2-5 L/min,	
Motor purge gas:	Tube OD Ø 6 mm	
Drain connection:	1" M-NPT	

* Considering additional capability of standard unit such as USB backup, recipe cycling, PC software etc.
** Measured without substrate, limitations may apply depending on chuck used and substrate specification.
*** NPP-H with α-crystalline properties.



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Vacuum or Mechanical Chucks

We offer several chucks for use in our spin coaters. One vacuum chuck is always included standard with the system. We stock a range of precision machined polypropylene or PTFE (solvent safe) chucks compatible with our spin coaters up to 300 mm. POLOS chucks are machined to close tolerances, and provide an exceptionally flat, rigid surface for mounting substrates of different sizes, weights, and shapes.

Smaller sizes include an interchangeable small fragment adapter with a push fit base that fits firmly onto the standard included chuck for ease of use. SPS-Europe can also provide custom chucks depending on your application, including porous PTFE for thin substrates. For square and rectangular substrates, we offer a recessed design which holds the substrate securely in place both with and without vacuum, reducing substrate warpage for better film uniformity during coating.

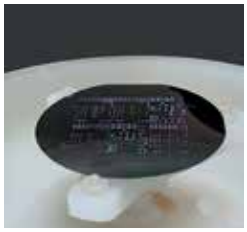
Chucks are available in the following materials:*
PP: NPP with EPDM o-ring, FP: PTFE (TFM™1600with FKM o-ring), SS: Stainless steel, AL: Aluminum

Fragments

Dies, wafer, fragments, etc.

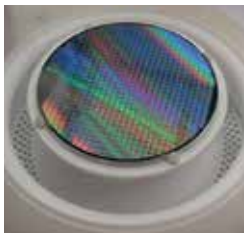
Round Substrates

Vacuum for 2” up to 300 mm wafers



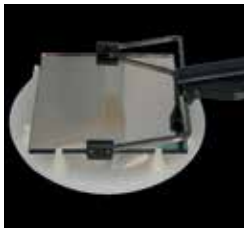
Low Contact

MEMS



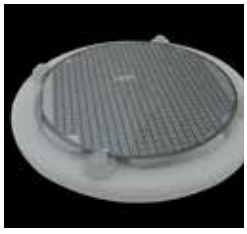
Round Substrates

Vacuum and centering pins for 2” up to 300 mm wafers low contact



Glass Substrates

Mask, solar, cells, etc.



Round

Mechanical and centering pins for 2” up to 300 mm round substrates

Other Substrates

Laboratory slides, etc.

Thin, Fragile Substrates

Foils, etc.

**Note: Other materials available upon request. Please contact us for details.*

Typical Applications

Our extensive line of spin processors covers a wide range of process applications. Used in combination with our megasonic MegPie and special Lift-Off fluid, these spin processors can further be used for photoresist stripping and metal lift-off. Our POLOS Advanced Series can be used with ozone in DI water (DiO_3), providing an effective replacement for Piranha (H_2SO_4 H_2O_2) cleans.

Suitable for all typical spin processes, the systems are available in all-PTFE construction for special applications.

Coating - Etching- Developing - Cleaning

The following pages provide examples of typical applications that effectively demonstrate our processors capabilities.

Coating

Spin coating is one of the most common techniques used in the fabrication of nanometric polymer thin films (PDMS, block copolymers, etc.). The acceleration within the programmable spin speed is important, as it controls the thicknesses that can be achieved from a given solution. Spin coating can produce uniform films from upwards of 1,000 rpm with relative ease.

The advantage of the POLOS range spin coaters, with its high speed of 12,000 rpm and ramp-up of up to 30,000 rpm/sec*, is its ability to quickly produce uniform films from a few nanometers, to several microns thick.

Control of the motor mode rotation (clockwise/ counterclockwise), combined with up to 6 automatic dispensers, enables a uniform deposition of multilayer thin films and photoresist development. These features support a quick process optimization with fully automatic and highly reproducible recipes.

The physical and chemical cleanliness of a substrate is critical for high quality films, regardless of the application method. Our units can integrate with the megasonic line, providing the user with one encompassing system that enables a wide range of processes.

Connect N2 top purge to fill the chamber with N2 blanket

**Depending on substrate size and chuck type.*

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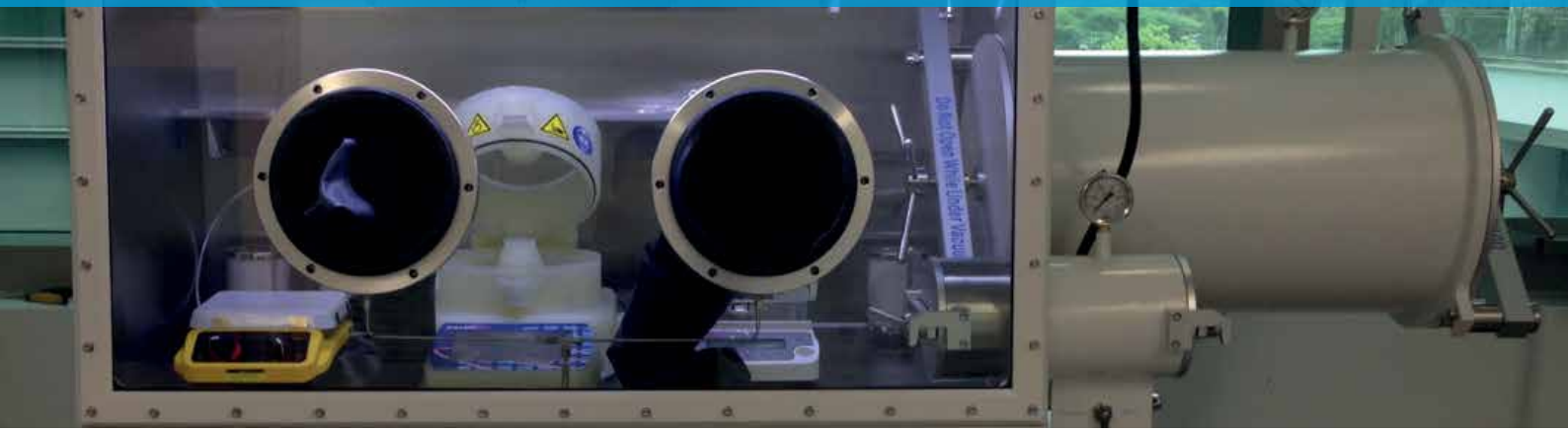
Spin Coater in Glovebox Options

Do you want to use a spin coater in a glove box?
A glove box provides a versatile working space isolated from the outside (room) atmosphere, designed to shield operators from danger, and enable repeatable spin coating in a high purity inert atmosphere.

The SPIN150i spin processor has been specifically designed for R&D purposes and is ideal for processing small fragments and wafers up to 150 mm in a clean, particle-free environment. The chamber can be supplied in either natural polypropylene (NPP) or PTFE for greater chemical compatibility. The versatile platform with 3 programmable I/O ports is ideal for applications including photoresist spin coating, etch, develop or cleaning processes, or, when used in a glove box with proper filtered exhaust, processes with aggressive chemicals.

Spin coater integration in glovebox is easy



Picture shows Vigor glove box with a SPIN150i table top

The detachable keyboard, connected using a standard CAT5 ethernet cable, allows the SPIN150i to be easily installed within the glovebox. The small footprint and height of only 250 mm (9.84") allows the unit to fit through a standard air-lock.

The keyboard can be installed, either inside or outside the glove box. The large icons on the touchscreen panel and chemical resistant keyboard are glove-friendly. Alternatively the unit can be operated by optional foot switch.

For OEM-installations we also offer in-deck spin coaters, which are designed for full integration* into the glove box.

Picture shows Jacomex glove box with a SPIN150i integrated

** Full integration should only be undertaken by an OEM glove box manufacturer.*

Spin Process Station

Based on the proven high quality POLOS single substrate spin processor, the modular design spin process station is an excellent value: full plastic construction, high-end components, compatibility with any chemical environment in a modular set-up, and suitable for all your specific requirements. The spin process station is an extremely versatile platform for a wide range of processes.

Multi-Process Chamber

The compact circular process chamber is constructed of solid polypropylene or ultra pure PTFE, while the movable dispense arm, process tanks, and chemical supply lines are all made of ultra-pure, seamless Teflon® (PFA or PTFE). This entirely metal free environment is suitable for a variety of aggressive chemicals, and a multitude of processes. The sideway integrated dispense arm fully withdraws from the process chamber to avoid negative influence on process uniformity.

Examples for a wide range of substrates and applications:

- Laboratory glass slides, e.g. 76x26 mm
- Pieces & fragments
- Wafers: from 1" up to 12"

Application examples

- SC1-SC2-DHF clean-rinse
- HF/HNO_3 etch
- Photo resist coating
- Edge bead removal (EBR)
- Puddle and/or spray developing
- Post CMP high pressure and/or megasonic cleaning
- 70 °C KOH etch with recirculation
- Diced wafer clean (on film frame)

- Mask/FPD glass substrates:

Application examples:

- Coat-develop, up to 20"
- Piranha (Etch)
- Cleans up to 16"

- Solar cells: 103, 125, 156 and 210 mm square

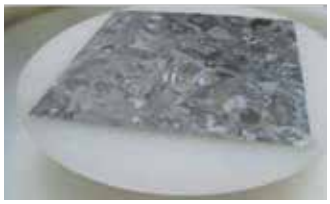
Application examples:

- Texturing: alkaline or acidic
- Porous Si etch
- Oxide etch (PSG removal)
- Cleaning
- Protective layer coating

- Film frames: 4" up to 12"
- Optical media

Value proposition

- Fully automatic, accurate and repeatable processing:
- Movable linear dispense arm:
  - Freely programmable static, dynamic or oscillating chemical dispense
  - High pressure and/or megasonic cleaning directed to any point on the substrate.
- Static chemical dispense through a range of adjustable nozzles in the domed lid.
- Adjustable back side spray arm
- Heavy duty motor: programmable for 0 - 12,000 rpm.
- CW & CCW Rotation allowing puddle mode.
- Freely programmable processes:
  - Sequentially programmable multiple dispense line
  - Stepless programming of various flows within a process step from 150 up to 2,500 mL/min.
- For optional integrated mixing systems, the mixing rates of the variouschemicals canbe programmed for each step.



Spin process stations are available in 85 cm, 1.40 m, 1.70 m and 2 m wide welded polypropylene enclosures, with built-in integrated spin processors that contain separate pneumatic, electrical and chemical compartments. Chemical tanks, heaters/chillers, etc. are safely stored and easily accessible in a slide-out drawer. The heart of each spin process station is the POLOS spin processor proven technology. These rugged, reliable units deliver long lasting repeatable performance.

Spin process stations offer a wide process window for your current and future requirements, and they are surprisingly affordable.

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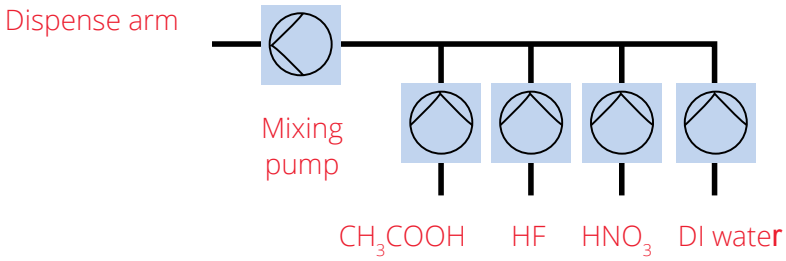
Etching

Spin etching as post-treatment after wafer thinning

Wafer thinning (back side grinding) is used in IC and MEMS fabrication in order to:

- Achieve a desired device thickness (ICs, MEMS)
- Ensure a specific thickness based on device functionality (MEMS)
- Reduce substrate series resistance in vertical devices (power devices)

A study by Dr. K. Gottfried of Fraunhofer ENAS on spin etching with HNO_3/HF/CH_3COOH on a POLOS Advanced Spin Station proved that wet etch, executed as spin etch, offered a removal of 10 µm silicon. Furthermore, it almost completely removed all traces of grinding induced substrate damage.



The platform offers a comparatively simple and reasonably priced process setup. Much faster than CMP, the process offers a high and tunable etch rate, and the ability to process backside ground wafers directly, without additional cleaning.

Standard features

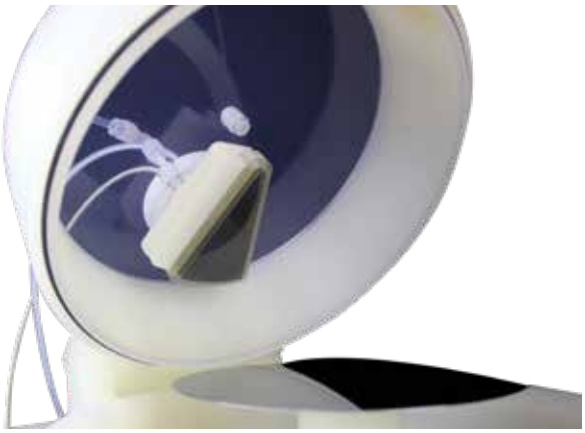
- Process applicable to 100 mm, 150 mm and 200 mm wafers with minimum conversion time (less than 15 minutes)
- Chemicals
- KOH
- HNO_3/HF/CH_3COOH (HNA)
- Continuous wafer rotation
- Puddle mode
- Dispense position and mode:
  - Fix position
  - Oscillating movement over a specific distance (wafer diameter)
- Spray dispense
- Flush dispense

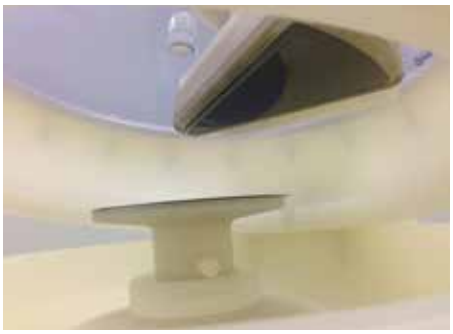
Depending on the chemicals used. Source: Fraunhofer ENAS-Dr. Knut Gottfried, Precise Bulk Silicon Wet Etching 2013

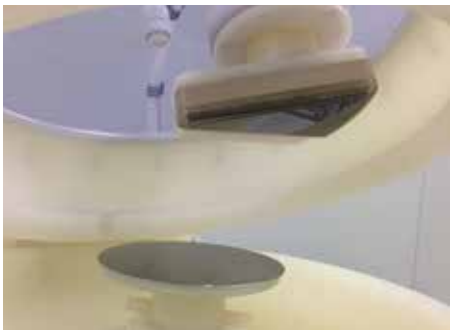
Post-CMP Cleaning

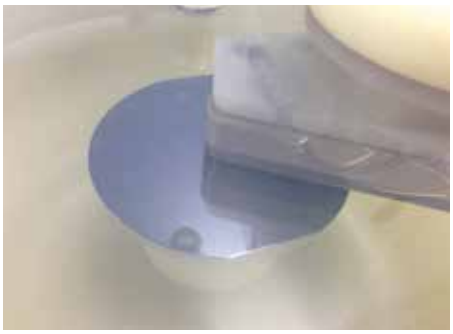
After CMP, the surface can be highly contaminated by slurry residues. Tests performed on a 3" silicon wafer polished with a slurry containing 50 nm colloidal silica particles demonstrated that the use of POLOS Advanced with ZTop MegPie megasonic transducer operating at around 1 MHz and combined with diluted NH_4OH, produced excellent cleaning results. *

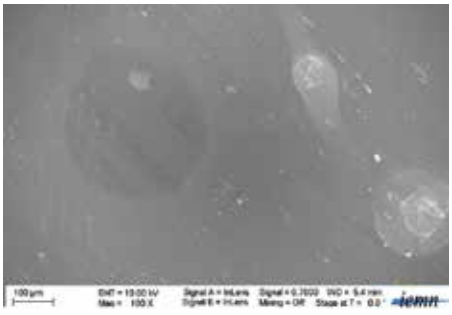
Highly diluted (2%) NH_4OH is used to enhance electrostatic repulsion between particles and surface (control of Zeta potential) to avoid re-deposition and re-attachment.

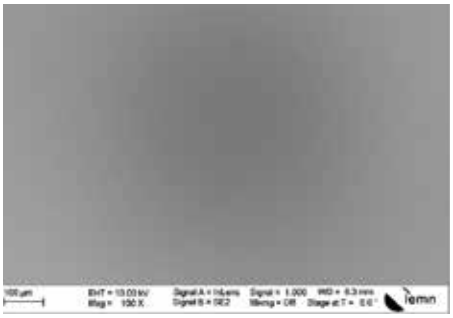


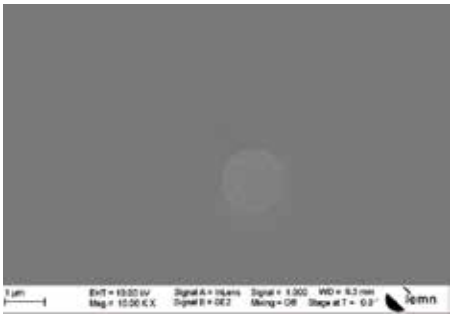












After CMP **After megasonic cleaning**

Our test case integrated the Polos ZTop MegPie within the POLOS Advanced 200 mm spin processor. This MegPie kit allows you to choose between 150 and 200 mm active area, and is available with a sapphire or stainless steel ZTop MegPie.

The POLOS ZTop MegPie control is integrated into the software of the POLOS Advanced, allowing servo controlled positioning of the MegPie and control of forward power. It also monitors the reflected power, and controls the temperature alarms. The distance to the substrate is monitored with an ultrasonic sensor.

Excellent results are achieved by using the megasonic cleaner diluted with NH_4OH.

** Test report available upon request.*

SPINCOATING
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POLOS Precision Bake Plate

The modular setup of this new table top hotplate enables easy plate (chuck) exchange and upgradeable options, making this a versatile and affordable tool for R&D and pilot lines. A precision digital temperature controller enables adjustable temperature steps of 1 °C up to 230 °C. It is suitable for soft bake as well as hard bake processes, and curing of photo resist, epoxy or any other work requiring precise temperature control.

Features

- Diagnostic serial interface (RS232)
- Precision temperature controlling system. Uniform temp.: +/- 0,5 °C
- Digital temperature controller: adjustable in steps of 1 °C
- Countdown timer (1-999 sec.) with acoustic alert

Options

- Hinged lid
- Proximity pins
- Lifting pins
- Vacuum bake

Operational environments

The system is designed for an ambient temperature of 10 °C - 40 °C.

Measurement & Weight	HL200S
Weight:	12 kg
Dimensions device: Dimensions with Hinged Lid:	450 x 320 x 135 mm 450 x 320 x 200 mm

Features include

- Temperature ranges from 50 - 230 °C (adjustable in steps of 1 °C)
- Programmable storage of 10 programs (temperature/time)
- Temperature uniformity ± 0,5 °C
- Heater surface area 220 x 220 mm
- Suitable for 1 x 8" wafer
- Heater block material: aluminum (anodized) or PTFE coated
- CE-certification

Operating requirements:	
Voltage:	110 or 240 VAC / 50/60 Hz
Max. current:	2,5 / 5 A
Power consumption (max.):	550 Watt

UV direct laser writer for maskless lithography

The PicoMaster series are versatile UV Laser Writers with ultra high precision components, specifically designed to give the user the highest degree of freedom to create micro structures in photo sensitive layers. The rasterizing principle of the machine ensures proper and constant exposure over the whole surface. Scanning the substrate at high speed and stepping the laser head with a software adjustable pitch.

- Highest resolution in the market with 405 nm laser
- Minimal maintenance costs
- Compact optical module
- User-friendly operation

PicoMaster 100 - Table-Top System

Unprecedented finesse in creating 3D micro structures

- Max substrate size: 4″ x 4″
- Scan axis speed: Max. 200 mm/s
- Stroke scan and step: Max. 115 mm
- 375 nm source available for more demanding applications

Height: 750 mm | Width: 600 mm | Depth: 600 mm (not including optional air duct)

PicoMaster 150 - Stand-Alone System

Excellent performance in creating 3D micro structures

- Max substrate size: 6″ x 6″
- Scan axis speed: Max. 200 mm/s
- Stroke scan and step: Max. 175 mm
- Vacuum pump integrated

Width: 1260 mm (with fixed screen) | Depth: 1297 mm | Height: 2065 mm (to ceiling)

PicoMaster 200 - Stand-Alone System

Excellent performance in creating 3D micro structures

- Max substrate size: 8″ x 8″
- Scan axis speed: Max. 400 mm/s
- Stroke scan and step: Max. 250 mm
- Vacuum pump integrated

Width: 1260 mm (with fixed screen) | Depth: 1297 mm | Height: 2065 mm (to ceiling)

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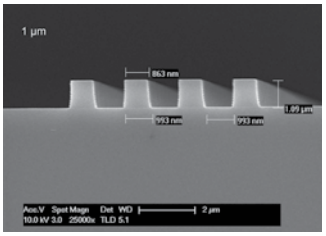
Mask Aligners

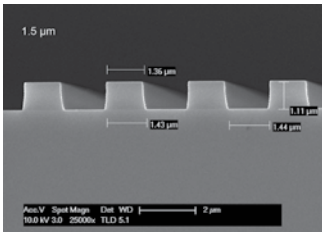
4" UV LED Mask Aligner

The MDA-400LJ is a mask aligner specially designed for university and research institutes. The system is equipped with a maintenance-free 365 nm LED light source (50,000 hours lifetime) and therefor ideal for resist processing.

Mask aligner with UV light mask light sources use significantly less energy compared to conventional mercury vapor lamps. The lights of the Midas mask aligner do not need to warm-up and cool-down. No need for the cooling fan, filters or shutter. The LED light source is only switched on during the actual exposure process. LED mask have a much longer life-time. In terms of health, safety and environmental protection, the LED technology provides a significant improvement in the mask alignment.

Item	Specifications
Substrate size	Up to 4" also available for 6"
Light source	UV LED
Resolution	1 µm with 1 µm thin PR @ Si Wafer
Alignment accuracy	± 1 µm
I-line beam intensity	About 10mW/cm^2
Process mode	Soft, Hard, Vacuum contact & Proximity





SEM 1 µm high pattern, generated with DPR-i5500 Photo resist, processed MDA400LJ with the UV LED lightsource.

Full automatic mask aligner MDA-80FA

- Easy operation
- PC Operation with PLC control
- Image grab & Data log
- More than 100 Program recipes
- Microscope position control system
- Auto Align mark searching function

Item	Specifications
Type	Full automatic
Mask size	up to 9" x 9"
Substrate size	Piece to 8" Ø
UV lamp & power	2kW & power supply
Uniform beam size	10.25" x 10.25"
Beam uniformity	< ± 5%
Beam wavelength	350 ~ 450 nm
365nm intensity	25mW/cm^2
Alignment accuracy	1 µm
Process resolution	1 µm @ 1 µm PR thickness with vacuum contact
Process mode	Soft, Hard, Vacuum contact & Proximity
Substrate chuck moving	X,Y,Z, & θ (motorized)
Frame	Anti-Vibration system
Options	UV Intensity meter, etc.

SPINCOATING

Almost 30 years of quality service and products

With >2,000 systems installed worldwide, up and running for over many years, our POLOS spin coater have proven themselves as the #1 single wafer spin processor. For over 30 years now, SPS-Europe offers versatile, high-quality, all plastic POLOS™ single substrate spin processors. Various models have proven themselves over the years for processing a wide range of substrates from small fragments up to Ø300 mm substrates. We offer even units for flat panels up to 1000 mm square. SPS-Europe operates as a full-service distributor to the front-end semiconductor manufacturers and related industry. From our 6 offices in Europe, 1 office in Singapore, and a world-wide distributor network, we offer full-time service engineer support for the systems we supply in almost every country. Dedication towards our customers and flexibility in finding the right solution, combined with solid application knowledge and fast supply logistics, are the keywords of our service.

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