盛慶企業有限公司
SHENG-CING INSTRUMENTS CO.,LTD
高雄:(07)313-5388 台北:(02)2808-4030
E-mail: service@shengcing.com
www.shengcing.com

Novascan PSD-UV, PSDP-UV and PSDP-UVT UV/Ozone Systems

With thousands of users worldwide Novascan's PSD and PSDP series UV Ozone systems are proven instruments that work. Contact Novascan today for help in selecting the proper system for your application.

- Atomic cleaning of surfaces
- Wafer cleaning
- Stripping Resist
- Polymer, PDSM, COC, PS bonding
- Preparation for thin films
- Cleaning LCDs
- Organic Molecule stripping
- Release of trapped inorganic molecules
- Microfluidic fabrication
- Cleaning AFM probes
- Micro and nano-patterning
- UV curing adhesives, inks, etc.
- Chemical surface modification
- Sterilization
- Oxidize surfaces
- Metal bonding prep and more

Sample Applications

In addition to the above uses, Novascan's PSD series instruments are often used for scanning probe microscopy applications. Our instruments can be used to clean common oily films and trapped inorganic materials from AFM tips, SPM standards and surfaces. Treatment can also be used to alter surface hydrophobicity, assist in tip and surface chemical modifications, oxidize and harden tips helping to maintain tip geometry while scanning, and sharpen tips for improved lateral resolution.

Novascan instruments are used in nanotechnology, chemistry, biology, optics, electronics, semiconductor, and other scientific laboratories around the world. The PSD Series publication list continues to grow.

Instruments that Work
Easy-to-use, high quality, reliable and affordable

Sample Substrates

Silicon	Silicon dioxide	Metals	Gallium Arsenide
Silicon Nitride	Mica	Ceramics	Polymers such as PDSM
Borosilicate Glass	Quartz	Sapphire	Other Materials

**Please try this link to search a thousand publications where Novascan UV systems were successfully utilized for a wide variety of applications: https://scholar.google.com/scholar?q=novascan+AND+%28ultraviolet+OR+UV%29

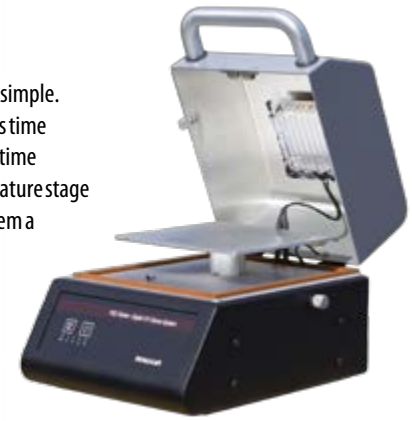
Instrument Specifications

The PSD and PSDP systems are similar in performance and dimensions, but vary in controller capability, upgradability and heated stage options.

The PSD Series

The PSD series instruments are digitally controlled benchtop systems that are available in sizes ranging from 4x4" to 20x20". These systems feature a powerful UV grid system with reflector and adjustable height stage for optimal sample positioning and performance. In/Out Gas Ports are available on the 4x4" and larger systems. The system is controlled by a convenient preset controller that makes operation a breeze.

Features:
- Preset Digital Controller
- Convenient 2 button operation is convenient and simple.
- Automated 15, 30, 45, 60, 90, 120 minute process time
- Process cycle can be manually interrupted at any time
- System cannot be easily upgraded with a temperature stage
- Cost saving yet functional design makes this system a popular choice
- Very simple setup and use
- A host of valuable options are available for the PSD, PSDP and PSDP-UVT to match all of your application needs. (Please see Appendix B for an Options List.)



The PSD Pro Series

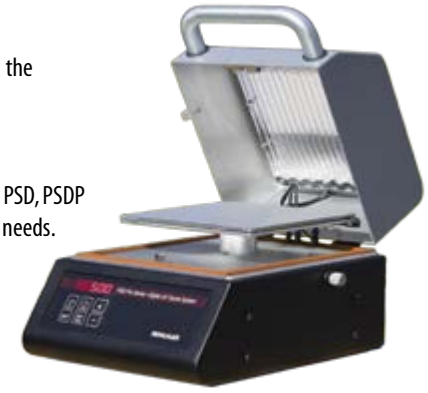
The PSDP series instruments are research grade UV/ozone cleaning systems that offer maximum versatility for molecular or ganic stripping and numerous other applications. Operate in ambient air or flow oxygen through one of two standard gas ports for increased ozone production. A programmable digital controller handles the system processing ensuring accurate timing regimes and optimum scouring parameters.

Features:
- Programmable Digital Controller for more operation control
- Digital Count down display.
- Easily upgradeable to the temperature controlled system
- Function "pause" and "interrupt" capability
- A powerful system that offers enhanced process control
- Internal Memory for previous settings
- A host of valuable options are available for the PSD, PSDP and PSDP-UVT to match all of your application needs. (Please see Appendix B for an Options List.)

The PSD Pro Heated Series

The PSDP-UVT takes the power of the PSDP-UV to a new level with the addition of a temperature controlled stage designed to maximize the destruction of molecular organic materials. A digital controller with PID feedback loop accurately maintains stable temperatures of up to 150 degrees Celsius. (200C available as an option)

Features:
- Identical to the PSDP, but factory installed with the temperature stage.
- Offers maximum potential and flexibility
- Ideal for multiple user environment
- A host of valuable options are available for the PSD, PSDP and PSDP-UVT to match all of your application needs. (Please see Appendix B for an Options List.)



Common System Features and Information

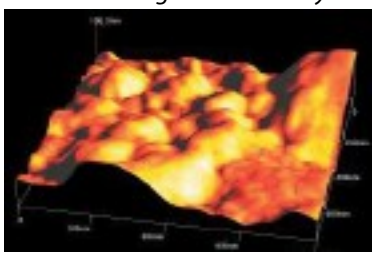
Power:	100, 120, 220, 240 VAC, 50-60 cycle	Safety:	Safety interlock turns off UV lamps when chamber is opened.
Sample Height:	All systems have an adjustable height stage with an external stage lock for proper sample spacing from the lamp. Standard stages are the UV grid size or larger.	Gas Ports:	Two ports standard, more ports optional
UV Grid:	Ozone producing Mercury vapor grid lamp with reflector. Half life approximately 5000 hours.	Vacuum Chamber:	Optional by special order - Aluminum and Quartz fabrication.
UV Reflector:	The UV Reflector is generally 1" larger than the grid size. For example for a 4x4" grid the reflector is 5x5".	Thermal UV:	Enhanced and faster treatment for resist stripping, polymer bonding, etc. up to 150C (200C Optionally)
Sample loading:	Chamber hinges up and away from the sample staging area allowing ~360 degree access for loading.	Ozone Neutralizer:	Neutralizer and Pump optional for PSD and PSDP systems. Automated Ozone Evacuation also available.
		Dual UV:	Optional Top and Bottom lamps for simultaneous treatment of both sides of the sample.

How the PSD and PSDP Series Work

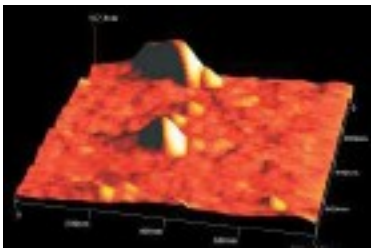
The PSD and PSDP Series Instruments destroy organic molecules (contaminants) by producing the proper ratio of high energy ultraviolet light at wavelengths of 185 nm and 254 nm. The 185 nm line drives molecular oxygen O2 to form the energized O3 Ozone radical. The 254 nm line simultaneously excites the organic molecules on the surface making them highly susceptible to destruction by the Ozone radical.

Since Ozone has a short half life and is also destroyedbythe 254 nmline, anadjustablesample stage is used to properly position the sample relative to the lamp for optimal performance. The PSD and PSDP destroyed contaminants are then released in the form of CO2 and H2O vapor, and remaining Ozone returns to the state of molecular Oxygen O2.

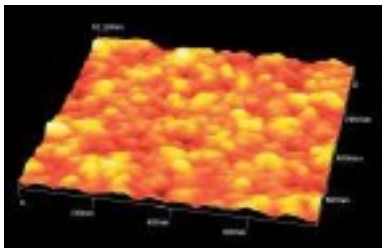
Contaminated glass laboratory slide



Contaminated glass laboratory slide after 10 minutes of PSD treatment



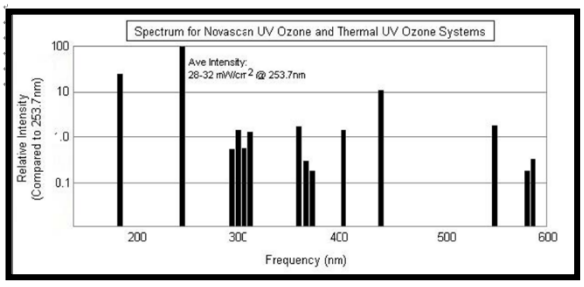
Contaminated glass laboratory slide after 20 minutes of PSD treatment



PSD and PSDP Model Specifications

System	Lamp Size	Sample Height	System Weight	System Footprint
* UV Grid lamps sizes are actually larger than listed, UV treatment area is generally 1" larger than the lamp dimensions shown. Custom systems and modifications are possible. Please inquire.				
PSD-UV4, PSDP-UV4, PSD-UV4T	4"x4"	~4"	41lbs	12L x 15.5W x 10.5H"
PSD-UV8, PSDP-UV8, PSDP-UV8T	8"x8"	~4"	41lbs	12L x 15.5W x 10.5H"
PSD-UV10, PSDP-UV10, PSDP-UV10T	10"x10"	~4"	56lbs	15L x 17W x 10.5H"
PSD-UV12, PSDP-UV12, PSDP-UV12T	12"x12"	~4"	56lbs	15L x 17W x 10.5H"
PSD-UV816, PSDP-UV816, PSDP-UV816T	8"x16"	~4"	56lbs	15L x 17W x 10.5H"
PSD-UV1016, PSDP-UV1016, PSDP-UV1016T	10"x16"	~4"	56lbs	15L x 17W x 10.5H"
PSD-UV1216, PSDP-UV1216, PSDP-UV1216T	12"x16"	~4"	56lbs	26L x 28W x 10.5H"
PSD-UV1616, PSDP-UV1616, PSDP-UV1616T	16"x16"	~4"	56lbs	26L x 28W x 10.5H"
PSD-UV1020, PSDP-UV1020, PSDP-UV1020T	10"x20"	~4"	95lbs	26L x 28W x 10.5H"
PSD-UV2020, PSDP-UV2020, PSDP-UV2020T	20"x20"	~4"	95lbs	26L x 28W x 10.5H"

Supplemental Information



Where to get Pricing and Order

For sales, technical or any other questions in Taiwan, please contact us at :

SHENGCING INSTRUMENTS CO.,LTD
Rm.7,6F, No.597, Jiuru 2nd Rd., Sanmin Dist.,
Kaohsiung City 80745, Taiwan
TEL：886-7-313-5388 FAX：886-7-213-5620
2F-3, No.10, Zihli Rd., Tamsui Dist.,
New Taipei City 25162, Taiwan
TEL: 886-2-2808-4030 FAX: 886-2-8192-6940
E-mail：service@shengcing.com Web : www.shengcing.com

Appendix A: Novascan PSD and PSDP UV Ozone System Publications

**Please try this Google Scholar link for an updated reference list and to search a thousand publications where Novascan UV systems were successfully utilized for a wide variety of applications: https://scholar.google.com/scholar?q=novascan+AND+%28ultraviolet+OR+UV%29

S.L Frey , E.Y. Chi , C. Arratia , J. Majewski, K. Kjaer and K.Y.C. Lee *Condensing and Fluidizing Effects of Ganglioside GM1 on Phospholipid Films* **Biophys. J. BioFAST**: First Published January 11, 2008.

C. W. Tsao, L. Hromada, J. Liu, P. Kumar and D. L. *DeVoe Low temperature bonding of PMMA and COC microfluidic substrates using UV/ozone surface treatment* **Lab Chip** 2007, 7, 499 – 505

C.M. Björström, S. Nilsson, A. Bernasik, A. Budkowski, M. Andersson, K.O. Magnusson and E. Moons *Vertical phase separation in spin-coated films of a low bandgap polyfluorene/PCBM blend—Effects of specific substrate interaction* **Applied Surface Science** Volume 253, Issue 8, 15 February 2007, Pages 3906-3912

J. Chouinard , A. Khalil, P. Vermette *Method of imaging low density lipoproteins by atomic force microscopy* **Microscopy Research and Technique** 2007 Volume 70, Issue 10 , Pages 904 - 907

R. Zhang, A. Best, R. Berger, S. Cherian, S. Lorenzoni, E. Macis, R. Raiteri and R. Cain *Multiwell micromechanical cantilever array reader for biotechnology* **Rev. Sci. Instrum.** 78, 084103 (2007)

M. Tencer, R. Charbonneau, N. Lahoud and P. Berini *AFM study of BSA adlayers on Au stripes* **Applied Surface Science** Volume 253, Issue 23, 30 September 2007, Pages 9209-9214

Z. Wang and R. Li *Fabrication of DNA micropatterns on the polycarbonate surface of compact discs* **Nanoscale Research Letters** Volume 2 , Number 2/February 2007, pg 69-74

M. Tencer, R. Charbonneau and P. Berini *Confinement and deposition of solution droplets on solvophilic surfaces using a flat high surface energy guide* **Lab Chip** 2007, 7, 483 – 489

W. Bian and L. Tung *Structure-Related Initiation of Reentry by Rapid Pacing in Monolayers of Cardiac Cells* **Circ. Res.** published online Feb 9, 2006

S.J. Hearne, J.A. Floro, M.A. Rodriguez, R.T. Tissot, C.S. Frazer, L. Brewer, P. Hlava, and S. Foiles *Stress creation during Ni–Mn alloy electrodeposition* **J. Appl. Phys.** 99, 053517 (2006)

M Surtchev1, N R de Souza1,3 and B Jérôme *The initial stages of the wearing process of thin polystyrene films studied by atomic force microscopy* 2005 **Nanotechnology** 16 1213-1220

D. Johnston, M. C. Tracey, J. B. Davis and C. K. L. Tan *Microfluidic solid phase suspension transport with an elastomer-based, single piezo-actuator, micro throttle pump* **Lab Chip** 2005, 5, 318 - 325

I D Johnston, M C Tracey, J B Davis and C K L Tan *Micro throttle pump employing displacement amplification in an elastomeric substrate* **J. Micromech. Microeng**. 2005 15 1831-1839

C. K. L. Tan, M.C. Tracey, J.B Davis and I.D Johnston *Continuously variable mixing-ratio micromixer with elastomer valves* **J. Micromech. Microeng.** 2005 15 1885-1893

Novascan UV Ozone Options – (Can be added to most base system configurations)

Option A: Variable Stage Option for UV Intensity control and Large Sample Height

- The Variable Stage Option allows you to achieve optimal performance by positioning your sample at an ideal location for the best UV intensity and ozone concentration balance.
- The Variable Stage can be used to control the UV intensity for applications where lower UV intensity are required.
- Expand stage height and chamber size.
- Treat short or tall samples with adjustment from 0 to 4" (0-100mm)

Option B: Microprocessor Control Option

- The Microprocessor Option allow you to enter precise exposure and treatment times, pause and restart treatments, and recall the last treatment time.
- Easy to operate with little to no training required
- Thermal UV Ozone (ThUV-O3) processor ready for future updates to ThUV-O3
- Processor is ready for future updates to the Dual Lamp Top/Bottom Sample Treatment Option

Option C: Thermal UV Ozone (ThUV-O3)

- ThUV-O3 increases UV Ozone treatment efficiency over standard UV Ozone by elevating the surface energy rendering contaminants more susceptible to the combined effects of UV and Ozone.
- ThUV-O3 is often used for Photoresist stripping, wafer cleaning, PDMS treatment, bonding, glass cleaning, polymer treatment, etc.
- Temperature is controlled using a PID Feedback loop.
- The designed allows for flexible use – The Thermal Stage can be used with UV or UV plus Thermal or just Thermal.

Option D: Ozone Evacuator – Neutralizer Option

- Ozone is a powerful irritant and is often subject to Environmental Health and Safety Standards. The Ozone Evacuator Option allows you to safely and easily remove and neutralize residual ozone and monoatomic oxygen after intense UV treatments.
- With this Option you can operate a UV Ozone system at benchtop locations without a fume hood or without other means to remove residual ozone.
- Remove samples from chamber soon after treatment.
- Operates with standard wall outlets and laboratory voltages.
- Can be placed beside or underneath small and medium Novascan UV Ozone systems for optimal bench use.
- The Ozone Evacuator Option is available as a manually operated system or as an automatic evacuation system.

Note: Please see More Options on Page 2.

Option E: Controlled Environment Quartz Gas Flow Cell Option

- The Flow Cell Option allows you to expose your sample to UV and Ozone or other gases in an ultra controlled manner.
- Pure O2 is generally the gas used during UV treatment, but for some non-oxidizing applications other gasses can be easily used with the Flow Cell.
- The Flow Cell can also be used for Chemical Surface Modifications where the sample is first UV treated and them chemically modified without re-exposing the surface to an ambient environment.
- Sealed quartz window flow chamber with single top window or optional top and bottom windows.
- Smaller volume for rapid gas exchange
- Higher Vacuum applications are possible with optional thicker quartz windows
- 5" chamber diameter
- Multiple inlet and outlet ports
- Requires no power for operation
- The gas flow is easily coupled with a Novascan Ozone Evacuator-Neutralizer or can be used with a gas bubbler, fume hood etc.

Option F: Dual Top and Bottom Sample Treatment Option

- This option allows you to UV treat the Top and Bottom of your sample at the same time generally for added convenience and time savings. For example, this is ideal for double sided wafer treatment or other samples.
- This Option features Dual Power Sections with dual lamps for up to double the ozone production of a regular system.
- User may switch between Top Lamp only, Bottom Lamp only or simultaneous Top and Bottom Lamp treatment.
- An optional Dual Quartz Window Flow Cell can be used with the Dual Lamp Option.
- A fine mesh metal sample holder is used to allow UV treatment from bottom lamp. In addition an optional Quartz sample holder and custom machined sample holder or wafer trays can be fabricated if required.