



M&R Nano Technology Co., Ltd.

Photolithography equipment & material total solution
photolithography equipment & material total solution

About M&R Nano Technology Co., Ltd

Business philosophy

Vision **Innovate, Surpass and Share**

Mission **“Continuous refinement on process · Persistent on innovation”
Become an expert in equipment and materials for photolithography process.**

Our Core concept: **mutual trust and reciprocity**

The establishment and formation on corporate culture of M&R Nano Technology is a process of specific and progressive interpretation, and must be with the four core concepts of value based on mutual trust and reciprocity.

The four spirits of enthusiasm on fundamental, innovation & excellence, discipline enhancement, and execution efficiency are the work attitude and value that all M&R Nano Technology employees must possess, and is the way and principle of doing things.

Services and quality policy :

Equipped with class 1000 grade clean room that makes the facilities have a better test environment for domestic and foreign manufacturer clients to make tests with more precision electro-optical equipment and on manufacturing processes.

Equipment application scope :

M&R Nano Technology products on photolithography equipment can be used in advanced semiconductor packaging, active and passive components, optoelectronic displays, backlight modules, and other processes that are highly focused products currently such as solar cells and LED.

Market Location Distribution



Summary of Customer List



Introduction of M&R Nano Technology



1 · Factory outline ↓



8 · Good education and training system ↑



2 · M&R Professional Lab ↓



7 · MIT machines ↑



3 · Machines display area ↓



6 · Comprehensive thorough test processes ↑



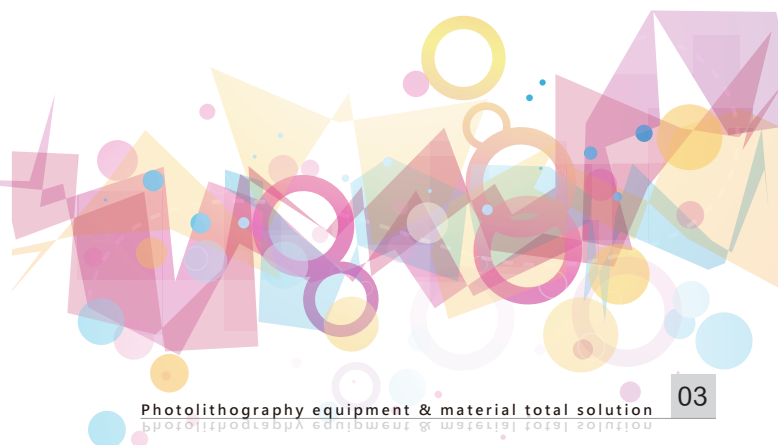
4 · Professional R&D team



5 · Area for Assembly Machines

Main Business Scope

Spin Cleaner/Developer	P06	Conveyor type	P25
Spin Coater	P07	UV Cleaner	P26
Hot Plate	P10	Photo Mask	P27
Oven	P11	Photo Resist	P28
Auto/Semi/Manual Mask Aligner	P13	Graphene	P29
UV LED Mask Aligner	P20	Ultrasonic / IPA / X-ray / wind knife nano reticle (Reticle) cleaning machine	P30
Maskless Laser Direct Imaging System	P21	Microprobe	P31
Other Introduction	P22	Stepper	P32
Wet Bench	P23	Platter / Glovebox / Microscope	P33
Spin Dryer/Hot N2 Dryer	P24		



Introduction of products



Picture for products



Wafer Rinsing (Developing) machine



Blue-film Rinsing machine



Two-stage Rotation Coating machine



Table-type, semi-automation programmable rotational coating machine (Edge washing function)



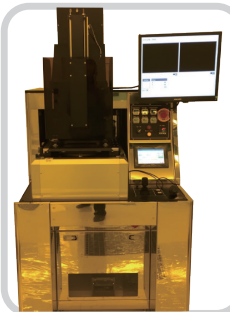
Semi-automation coating machine



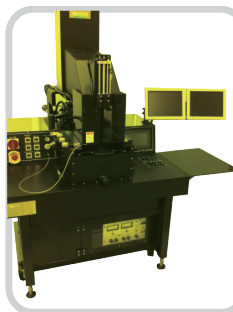
Automation coating machine



8"-12" LED photo exposure alignment machine



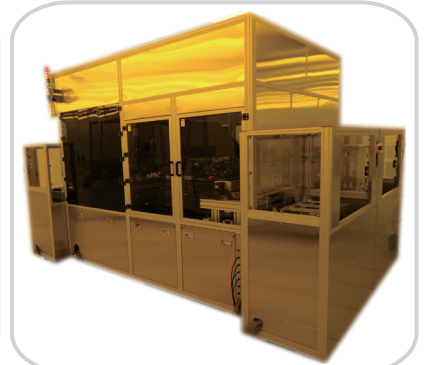
8"-12" photo exposure alignment machine



Double-sided alignment on one side photo exposure machine



Automation mask alignment photo exposure machine



Fast (two tracks/4 tracks) photo exposure machine



Developing machine



Etching & removal of photo resistance machine



Rinsing machine



UV Cleaner machine

SPIN CLEANER/DEVELOPER

Wafer Rinsing (Developing) machine/Blue-film Rinsing machine



Model SWT (Manual operation, Table Type)
W 400mm x D 450mm x H 420mm

Summary of facility : Applied sizes : 2" -6" Wafer substrate

Basic specifications :

- Material of outside case: Isopropyl alcohol over above P.P, acetone solvent material
- Suction cup: 1 set
- Nozzles: 3 sets (isopropyl alcohol x1 • acetone x1 • empty nozzle x1).
- Air exhaust system.
- Discharge the liquid waste system.
- Motor: AC servo motor (speed 1:0-6000 RPM).
- Fixed nozzle: 1 (N2).
- Open cover method: Upward manually.
- Plastic material for nozzle head and resistant to ACE.
- Screen design for drain.
- A low water level sensor is set in the pressure tank and with the automatic rehydration.
- Nozzle top installs safety device to avoid random adjustment by personnel.
- The safety device is set as once cover is opened, production will automatically stopped



Model SWA (Automatic operation, Floor Type)
L 1175mm x D 700mm x H 1100mm

Summary of facility : Applied sizes : 2"-12" Wafer substrate

Basic specifications :

- Material of outside case: Case body is made up of SUS 304 bright panel material.
- Equipment skeleton structure: aluminum extruded assembly, strong structure.
- Basin cover: SUS 304 glossy steel plate, cover structure
- Basin cover: cylinder drive, it can not rotate in case the cover is not closed
- Suction cup: Aluminium suction cup is anodized, with acid and alkali resistance, and the surface of the suction cup is smooth.
- Operation window: use transparent PVC or glass material to master the real operation status
- Air exhaust system: design of direct ventilation meanwhile to reduce odor.
- Drainage system.
- Motor: AC Motor (speed: 30 1800 RPM).
- Swing arm: Diameter swing, AC Motor.
- Machine safety protection system.

Electronic control system :

- Software: PLC programmable automation controller
- Operation interface: man-machine.
- Module design: 6 sets of module settings
- Setting of segments setting: Each designed module has 7 segments, which can be set for acceleration and time control.
- Password setting: password protection can be set according to the authority

Rinsing

PR Coating

Aligner Exposure

Developing

Developing

SPIN COATER/MANUAL SPIN COATER

Two stage spin coater/Semi-automation coater



MODEL: AGS-0206S



MODEL: AGS-0206B

Summary of facility :

Applied sizes: Fragment -6" Wafer substrate

Basic specifications :

- Material of outside case: PP.
- Operation basin cover: made of stainless steel, 22mm in diameter.
- Rotating Motor: DC brushless motor
- Rotation time setting: LED direct display, can set the seconds and points and switchable.
- Control panel: button knob type.
- Power: Single phase 11 0V, 1 0A.
- Speed: 300-6000 RPM
- Standard accessories: a set of 1/2", 1", 2", 4",
A set of 6" separating type
of suction cups.
- A set of vacuum pumps.



MODEL:
AGS-1006T_AGS-1012T
Floor type – Programmable
Rotation Coating machine



MODEL:
AGS-MCT06



MODEL: AGS-1012A
Table type - Programmable
Rotation Coating machine

Summary of facility : Applied sizes: 2" -12" Wafer substrate

Basic specifications :

- Applied sizes: 2" -12" Wafer substrate
- Material of outside: Welding combination of PP plate and can resist acid and alkali erosion.
- Operation basin cover: Made of SUS, round basin design. One pot cover: separate transparent PVC top cover.
- Suction cup specifications: a set of aluminum suction cup precision polishing with anode protection.
- Operation, feeding mode: manual direct input, manual feeding.
- Liquid type: photoresist, solvent.
- Motor: AC Servo Motor (speed: 10-6000 RPM).
- With vacuum pump (with PP dust cover).
- Vacuum liquid leakage protection: equipped with indirect protection design.
- Vacuum check: yes (digitally designed vacuum value, with kpa lower limit protection).
- Protection system: There is a display for state of all the devices, with abnormal detection.

Electronic control system :

- Software: PLC.
- Control mode: color touch man-machine system, with spindle speed curve.
- Design module and number of stages: 100 sets of design, 30 designs per stages

Optional functions : 1.Light-resisting automatic feeding system 、 2.Automatic feeding arm 、

3.Hot plate (HOT PLATE) 、 4.Edge washing device (EBR) 、

5.Backwashing device (BSR) 、 6.Waste liquid recycling bin device.

SEMI SPIN COATER

Semi-automation coating machine



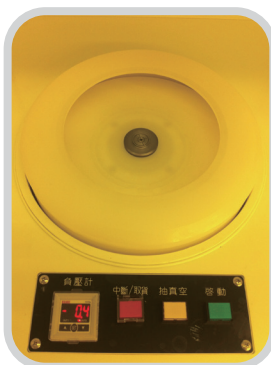
MODEL:AGS-01A~AGS-04A

Operation procedure: manually place the alignment center turntable -> start -> vacuum adsorption -> substrate is attached to the turntable -> Rotation starts -> Low Speed -> Medium Speed -> High Speed -> Rotation Stop -> Break Vacuum -> Manual Pickup

Summary of facility :

Applied sizes : Applied sizes: 2" -12" Wafer substrate

Basic specifications : -Material of outside case: The main body is made of SUS 304 bright panel material.



-Equipment skeleton structure: paint steel assembly, strong structure.

-Basin cover: PP cup, Three-piece basin structure.

-Suction cup: The aluminum suction cup is anodized and hardened, with acid and alkali resistance, and the surface of the suction cup is smooth.

-Air Exhaust system: The three-piece basin cover is designed for indirect drafting, which effectively stabilizes air turbulence and reduces odor at the same time to avoid residual photoresist on the back.

-Drainage system.

-Motor: AC Servo Motor (speed: 10-6000 RPM).

-Vacuum pump: Oil-free medium-sized vacuum pressure pump.

-Machine safety protection.

Electronic control system : -Software: PLC programmable automation controller.

-Using the operation interface: Color Touch Screen 'PLC interface to integrate HMI.

-Design module and number of stages: 100 sets of design, each design module can be set to 30 stages.

-Password setting: Password protection can be set according to the authority.

Optional functions : 1.Light-resisting automatic feeding system 、 2.Automatic feeding arm 、

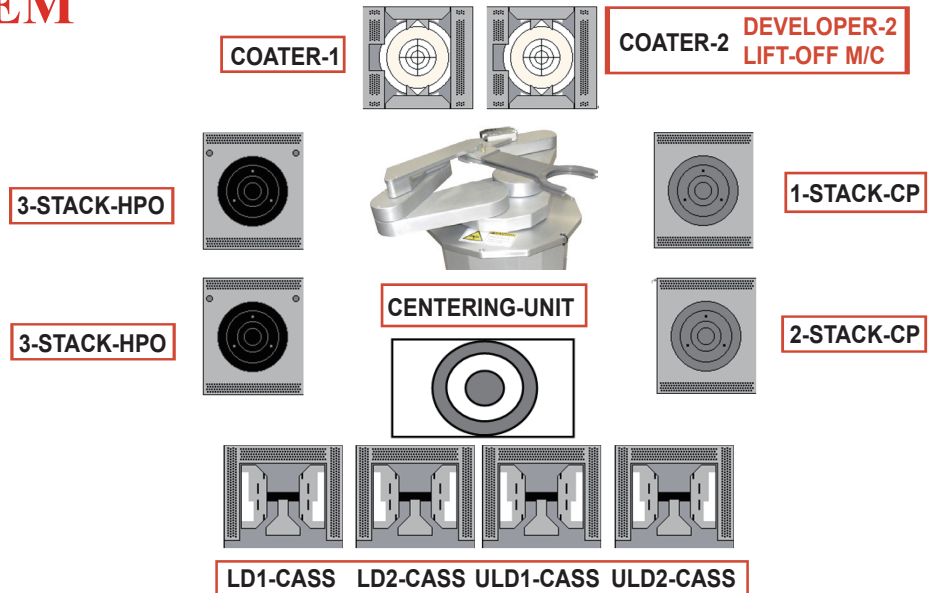
3.Hot plate(HOT PLATE) 、 4.Edge washing device (EBR) 、

5.Backwashing device (BSR) 、 6.Backwashing device (BSR)

AUTO SPIN COATER(DEVELOPER)

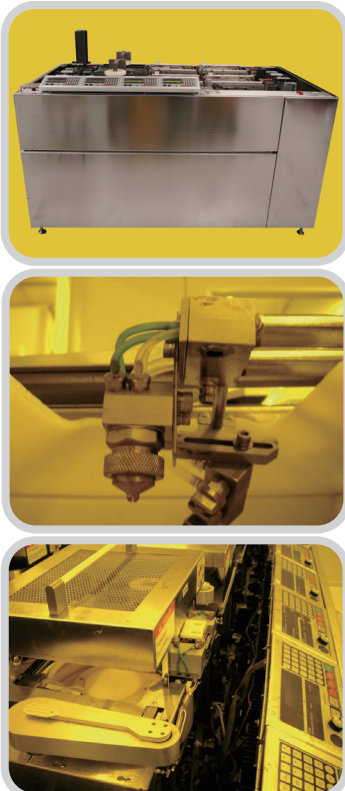
Robot Arm Transfer Coater (Developer)

CENTRAL ROBOT COATER (DEVELOPER)& LIFT-OFF SYSTEM

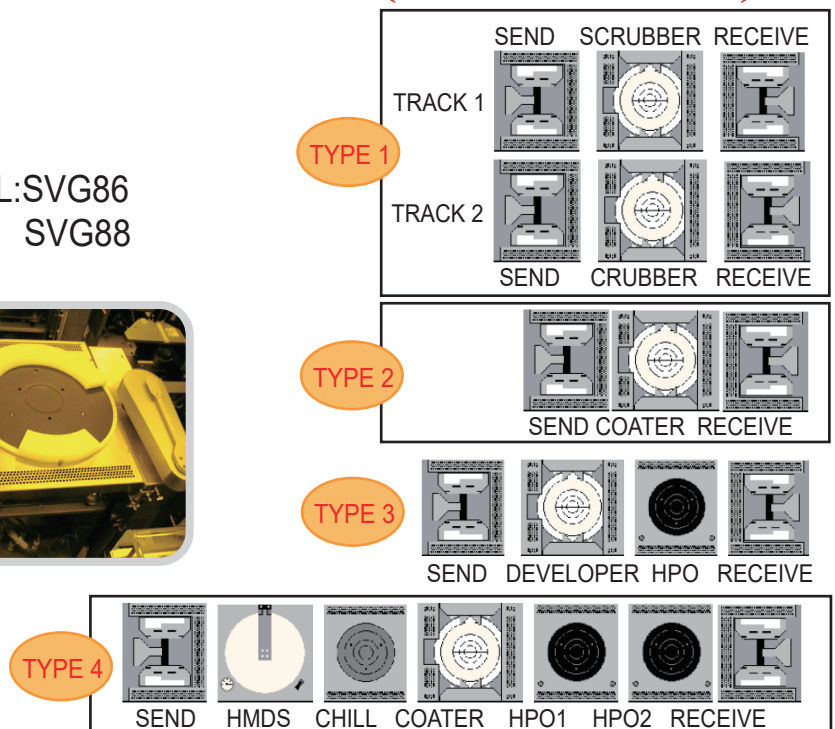
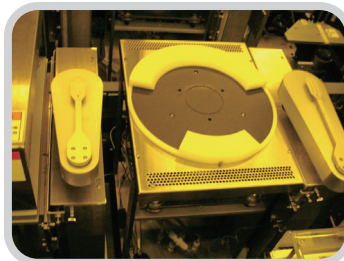


Track Coater (Developer)

TRACK COATER(DEVELOPER)



MODEL:SVG86
SVG88



HOT PLATE

Hot plate



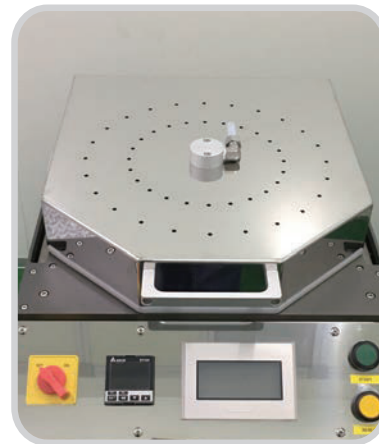
MODEL:AG-HP2S(200 x 200mm)
W 200mm x D 200mm x H 170mm
Power:750W
Time for heating is settable 0~99hr59min



MODEL:AG-HP3S(300 x 300mm)
W 300mm x D 300mm x H 170mm
Power:1500W
Time for heating is settable 0~99hr59min

Summary of facility :

- Resolution: 0.1 ° C
- Power supply: 220V
- Temperature range: room temperature ~ 350 ° C
- Thermostat: PID
- Over-heat report buzzer indicator
- Over heat shutdown indicator
- Timing and heating indicator
- accurate temperature control
- Timed heating and power off
- Temperature deviation correction
- heating power adjustment
- Over temperature alarm device
- buzzer switch
- The average temperature of the board is 100°C ±2°C



HOT CIRCULATOR EXACT OVEN

Precision type/ Hot Air Circulation Exact Oven



Model	Internal size W/H/D(cm)	External size W/H/D(cm)	Temperature °C	voltage (V)
ATD-452	45*40*40	66*82*52	RT~260	110/220
ATD-602	50*60*50	75*116*62		220V
ATD-802	80*100*60	110*164*78		
ATD-902	60*90*50	83*158*68		
ATD-1002	100*100*100	120*160*120		
ATD-1202H	90*120*50	109*180*67		
ATD-1202L	120*90*50	140*150*67		
ATD-1402	140*120*60	175*192*78		220V
ATD-1602	160*140*80	200*215*98		
ATD-1802	180*140*100	220*215*118		
ATD 2002	200*160*120	240*235*138		

Summary of facility :

- Material: Externally with treated SECC steel and powder baking surface finish; SUS stainless steel is used inside.
- Motor: Brand-new high temperature long-shaft motor.
- Wind wheel: Powerful multi-wing wind wheel.
- Packing: Silicon Packing.
- Over heat protection: independent over heat protector, self-diagnosis function, overload automatic power-off system
- Cycle mode: Forced horizontal air supply circulation, special air path design for uniformity of heating temperature.
- Heating method: PID+SSR.
- Temperature range: RT (room temperature) 10-20 ° C ~ 260 ° C.
- Thermostat: PIO microcomputer control, PV/SV displays the button settings at the same time; Temperature is controlled by time, it cuts off the heating current when the time is up. The storage board is made of SUS stainless steel. It is divided into strip type and round hole type, and the standard type is a strip type which can be customized with a tempered glass window that makes easy to observe the contents of the box.



Model	Internal size W/H/D(cm)	External size W/H/D(cm)	Temperature °C	voltage (V)
HTDH-455	40*45*40	73*114*72	RT~500	220
HTDH-605	50*60*50	82*127*72		
HTDH-805	80*100*60	112*168*90		
HTDH-905	60*90*50	92*158*83		
HTDH-1005	100*100*100	130*170*125		
HTD-1205H	90*120*50	122*190*83		
HTD-1205L	120*90*50	150*158*83		

Summary of facility :

- Material: Externally with treated SECC steel and powder baking surface finish; SUS stainless steel is used inside.
- Motor: Transmission connection type of motor.
- Wind wheel: Turbo fan.
- Fiber packing : high temperature resistant fiber
- Over heat protection: independent over heat protector, self-diagnosis function, Overload automatic power off system
- Cycle mode: force horizontal air supply cycle, special wind path design, uniformity for heating temperature.
- Heating method: PID+SSR.
- Temperature range: RT (room temperature) ten 20 ° C 4 50 ° C.
- Thermostat: PIO Microcomputer Control, PV/SV displays the button settings at the same time; Temperature is controlled by time, it cuts off the heating current when the time is up
- The above models can also be customized up to 300 ° C.

VACUUM DRY OVEN

Vacuum Dry Oven



Model	Internal size W/H/D(cm)	External size W/H/D(cm)	Temperature °C	voltage (V)
VOD-40	φ30×40L	44×73×66	RT~200	220
VOD-30L	30×30×30	50×76×47		
VOD-45L	40×40×45	60×86×62		
VOD-50L	50×50×50	79×110×75		
VOD-60L	60×60×60	89×120×85		
VOD-30LH	30×30×30	50×121×47		
VOD-45LH	40×40×45	60×131×62		
VOD-50LH	50×50×50	96×155×75		
VOD-60LH	60×60×60	200×215×98s		

Summary of facility:

Interior material: SUS stainless steel inside

External material: Externally with SECC steel plate, powder
baking surface treat

Ment cycle: heat radiation and natural heat convection

Temperate range: 50° C-200° C

Vacuum degree:

- (1) Withstanding high vacuum up to 5x 10⁻³Torr
- (2) Adopt ball-type valve for exhaust and intake valve Adopt ball valve,
easy to use and high tightness
- (3) Strengthened glass window for easy observation of the inside of the box
- (4) Easy operation and good temperature uniformity

Vacuum Dryer | Vacuum Drying Ove

Summary of facility :

1. Chamber and Frame :

A. Chamber and Frame :

- (1)Chamber size : About 300mm(D) x300mm(W) x 250mm(H)
(Based on actual design)
- (2)Chamber material : Aluminum A6061

2. Air Exhaust System :

A. Pump :

- (a)Dry Vacuum Pump => For Chamber
*model : Edwards iXL120
* Maximum exhaust speed: 65 cfm

3. Temperature range :

RT 10 °C ~ 200 °C

4. Measurement :

(1)Vacuum Measurement :

Convectron gauge, measuring range : 760 Torr ~ 10⁻³ Torr

(2) ATM Sensor × 1pc

5. Control System

- (1) Programmable settings for automatic pumping and deflation
- (2) The computer real-time sets the vacuum and gas flow settings,
also to real-time display and record the vacuum and gas flow settings.
- (3) The computer real-time displays and records the graph of vacuum and
gas flow settings, and can set the sampling frequency and range
of the curve.
- (4) The chamber leak rate test can be automatically performed by the
computer to real-time display and record the test results.



Rinsing

PR Coating

Aligner Exposure

Developing

Developing

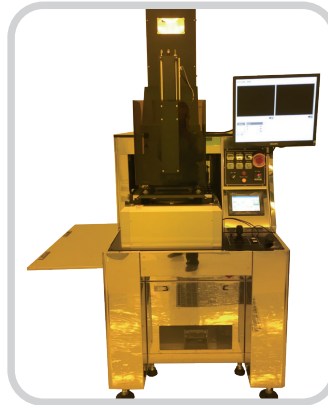
AG MANUAL MASK ALIGNER

AG Annual Mask Aligner

**Ready for
Industry 4.0,
Collection
for Big Data**



8" ~12" LED Manual Mask Aligner
MODEL:AG2000-12N-D-S-M-V

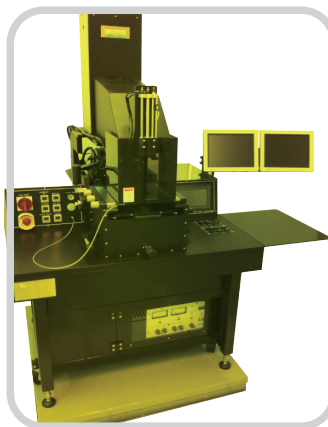


8" ~12" Manual Mask Aligner
MODEL:AG1000-8N-D-S-M-H

Advantage:
Patented leveling correction mechanism with high precision
User-friendly operation interface
Customization according to process module requirements



Double Sided Mask Aligner
MODEL:AG350-4N-D-D-M-H



Back Side IR/Visible
MODEL:AG1000-4D-D-R(V)-M-V

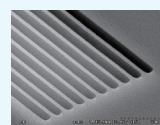
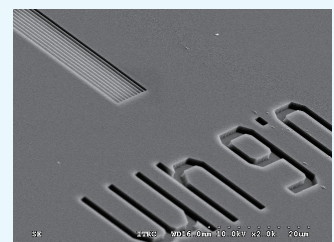
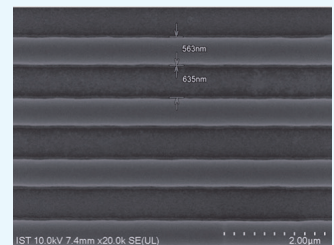
Options for back side IR/Visible process available
Back Side IR
Back Side Visible

Applications

- Applications : Semiconductor 、 MEMS
Passive Component 、 Touch Panel
Display Panel 、 LED

Specification

- Exposure light source : 350W 、 500W 、 1KW 、 2KW
- Substrate Size : 2" 、 4" 、 6" 、 8" 、 10" 、 12" ~up to 24"
- Uniformity : $> \pm 3\%$ and $< \pm 5\%$
- Alignment Accuracy : $\pm 1\mu\text{m}$
- Throughput : $\geq 65\text{wph}$



AG MANUAL MASK ALIGNER

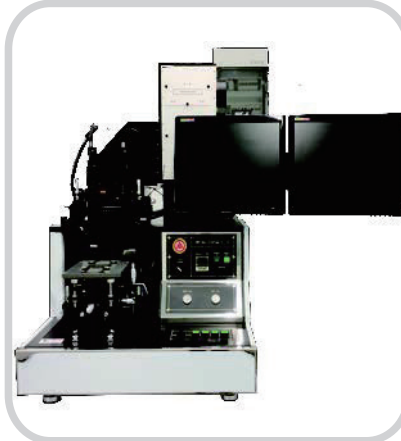
AG Annual Mask Aligner

Ready for
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Convenient Type
Mask Aligner

MODEL:AG350-6N-R-U



Convenient Type
Mask Aligner

MODEL:AG500-6N-SLC



Compound Stepper Mask Aligner

MODEL:AG500-4N-N-A-M-H

Advantage :

- Patented leveling correction mechanism with high precision.
- User-friendly operation interface
- Customization according to process module requirements

Options for back side IR/Visible process available :

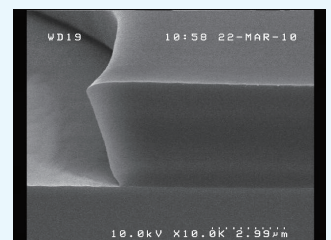
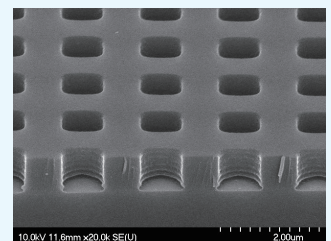
Back Side IR/Back Side Visible

Applications

- Applications : Semiconductor 、 MEMS
- Passive Component 、 Touch Panel
- Display Panel 、 LED

Specification

- Exposure light source : 350W 、 500W 、 1KW 、 2KW
- Substrate Size 2" 、 4" 、 6" 、 8" 、 10" 、 12" ~up to 24"
- Uniformity : $> \pm 3\%$ and $< \pm 5\%$
- Alignment Accuracy : $\pm 1\mu m$
- Throughput : $\geq 65wph$



AG SEMI-AUTO MASK ALIGNER

Semi-Auto Mask Aligner

Ready for
Industry 4.0,
Collection
for Big Data



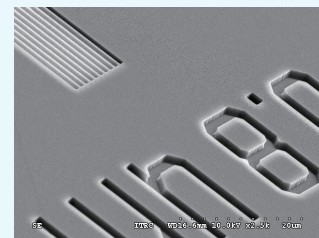
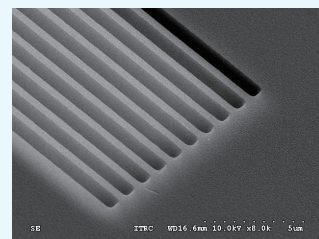
Semi-Auto mask alignment light exposure machine
MODEL:AG500-6N-D-S-S-V

Applications

- Applications : Semiconductor
- MEMS
- Passive Component
- Touch Panel
- Display Panel
- LED

Specification

- Exposure light source : 350W、500W、1KW、2KW
- Substrate Size 2" ~8"、8" ~12"
- Uniformity : $\leq 5\%$
- Alignment Accuracy : $\pm 1\mu\text{m}$
- Throughput : $\geq 70\text{wph}$



AG SHEET BY SHEET SEMI-AUTO MASK ALIGNER

FPD/TP Designated Mask Aligner

**Ready for
Industry 4.0,
Collection
for Big Data**



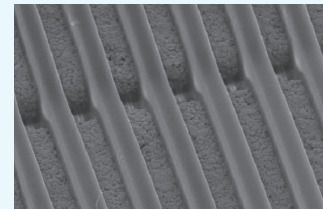
FPD/TP Designated Mask Aligner
MODEL:AG05K-G30-ST-D

Applications

- Applications : Touch Panel
- Display Panel
- Flexible Print Circuit

Specification

- Exposure light source : 3.5KW、5KW、8KW、10KW
- Substrate Size up to 730mm × 920mm, Applicable for all type of substrate (Glass/Film...Etc)
- Uniformity : $\leq 5\%$
- Alignment Accuracy : $\leq 5\mu\text{m}$
- Throughput : $\geq 2.5\text{pnl/min.}$



AG AUTO MASK ALIGNER

Automation light exposure machine

Ready for
Industry 4.0,
Collection
for Big Data



Technology is matured domestically
for 3DIC Mask Aligner System

3DIC Full Automation
Double-Sided Mask Aligner
MODEL:AG5000-12N-D-R-A-V



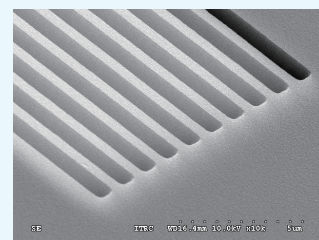
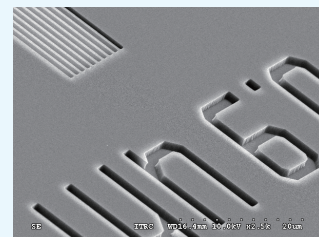
Automation mask alignment
light exposure machine
MODEL:AG1000-6N-D-S-A-V

Applications

- Applications : Semiconductor
- MEMS
- Passive Component
- Touch Panel
- Display Panel
- LED

Specification

- Exposure light source : 350W 、 500KW 、 1KW 、 2KW
- Substrate Size 2" ~8" 、 8" ~12"
- Uniformity : $\leq 5\%$
- Alignment Accuracy : $\pm 1\mu m$
- Throughput : $\geq 105wph$



AG AUTO MASK ALIGNER

Double Speed (2 tracks/4 Tracks) Auto Mask Aligner



Ready for
Industry 4.0,
Collection
for Big Data

High Production Output

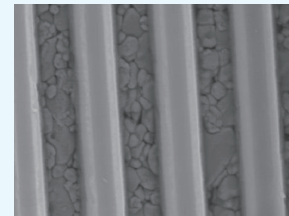
Double Speed (2 tracks/4 Tracks) Auto Mask Aligner
MODEL:AG05K-14N-DT-F

Applications

- Applications : Semiconductor 、 MEMS
- Passive Component 、 Touch Panel
- Display Panel 、 LED

Specification

- Exposure light source : 3.5KW 、 5KW 、 8KW 、 10KW
- Substrate Size 4.5" ~ 7" 、 7" ~ 11.6" 、 12" Square substrate
- Uniformity : $\pm 5\%$
- Alignment Accuracy : $\leq 5\mu\text{m}$
- Throughput : 8~10pnl/min.



AG DOUBLE SPEED AUTO MASK ALIGNER

Double Speed (Single Track) Mask Aligner

Ready for
Industry 4.0,
Collection
for Big Data



High Production Output

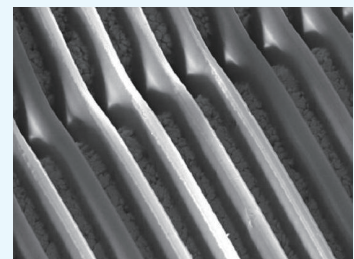
Double Speed (Single Track) Mask Aligner
MODEL:AG10H-06S-ST-D

Applications

- Applications : Semiconductor 、 MEMS
Passive Component 、 Touch Panel
Display Panel 、 LED

Specification

- Exposure light source : 500W 、 1KW 、 2KW
- Substrate Size up to 8" Square substrate
- Uniformity : $\pm 5\%$
- Alignment Accuracy : $\leq 5\mu\text{m}$
- Throughput : $\geq 4\text{pnl/min.}$



UV LED MASK ALIGNER



Advantages:

better process, smaller size, longer life, less power consumption, more accurate exposure, saves warm-up time and ambient temperature drop

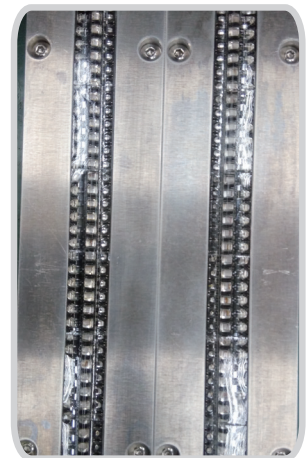
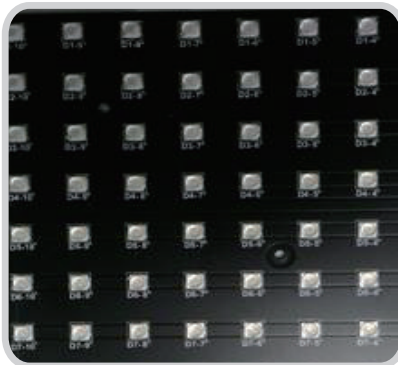
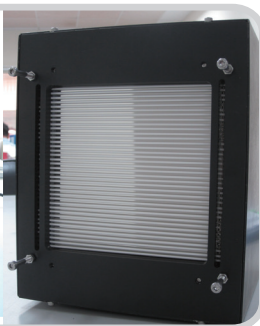
Applications

- Applications : Semiconductor 、 MEMS
- Passive component
- Touch Panel
- Display Panel 、 LED
- Biomedical micro-channel

Specification

- Applied substrate size: up to 4" , round substrate
- LED wave length: 365 | 405nm

UV CURING SYSTEM



- Light source type: LED, HID, mercury lamp, halogen lamp
- Exposure area up to 1200mm
- Applications: UV curing, drying, and subsequent equipment

MASKLESS LASER DIRECT IMAGING SYSTEM(LDI)



Maskless Laser Direct Imaging Machine
MODEL:AGLDW-X8 system



Maskless Laser Direct Imaging Machine
MODEL:AGMLL-CS500 / C900

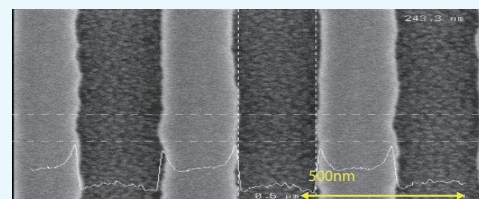
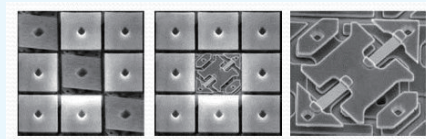
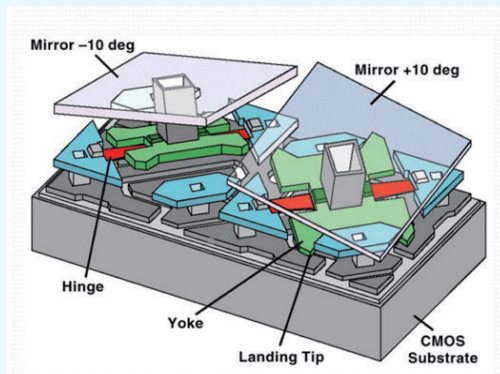
Item	Spec
Wafer half pitch size	130-65nm(mask)
Mask min feature image size	200nm
Mask OPC feature size, clear	160nm
Mask OPC feature size, opaque	100nm
Image placement	19nm
Wafer CD uniformity, binary	5nm
Mask design grid	4nm
Data Volume	1000 GB

Compact type LDI		MLL-C900		MLL-C500	
Item	Unit	I	II	I	II
Substrate size	Inch	8 inch expandable		6 inch expandable	
Max exposure area	mm ²	200 X 200		150 X150	
Resolution	um	0.6	2	0.9	2
Pixel Accuracy	nm	70	140	80	160
Line width U%	nm	150	300	200	400
Alignment accuracy	nm	500		800	
Capacity	mm ² /min	60	120	15	60

Applications

Applications :

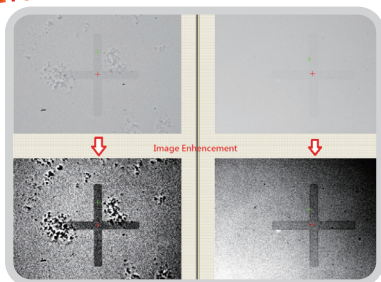
MEMS, Mask, IC,
Bio-Chip, 3D, Micro-sensor



OTHER INTRODUCTION

Outstanding Aligner Image Process Capability

Advanced Image Process Ability

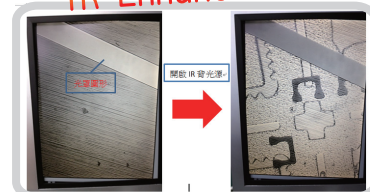


Under the condition of fuzzy, difficult to identify by eye, it is still able to complete the precise alignment.

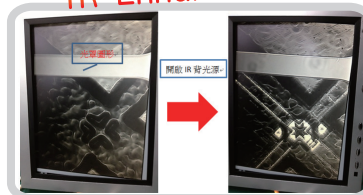
IR Enhancement



IR Enhancement



IR Enhancement



OPTION PARTS

220nm、365nm
254nm、400nm
260nm、420nm
280nm、436nm
310nm、more



Intensity meter

(Applicable for 3D printing as well as Curing process)

200W、2KW
250W、3.5KW
350W、5KW
500W、8KW
1KW、10KW



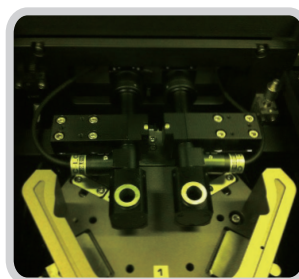
NUV/DUV Lamp



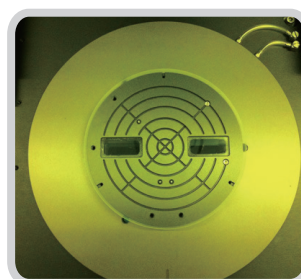
LightSource



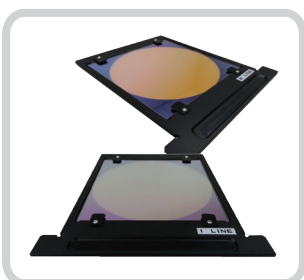
Robot & Pre-aligner



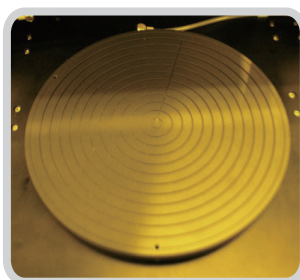
Back side Visible



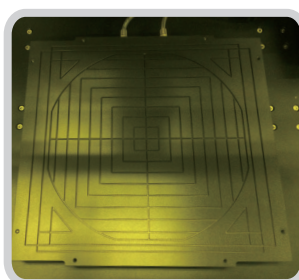
Multi-sub. Chuck



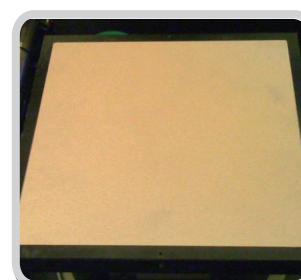
Filter



Chuck



Multiple Chuck



Ceramics Chuck

Rinsing

PR Coating

Aligner Exposure

Developing

Developing

WET BENCH

DEVELOPER/ETCHER



MODEL:AGWM
(Manual)



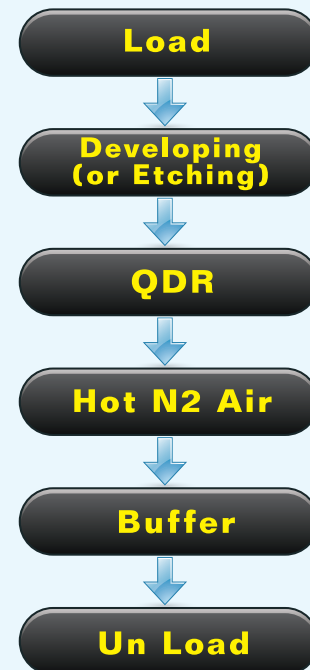
MODEL:AGWS
(Semi-automation)



MODEL:AGWA
(Automation)

Summary of facility :

Body material: American PP plate or SUS 304.
 Work sink: Custom.
 Electronic control program: PLC or PC
 Operation interface: touch panel and button
 Piping system: located behind the machine
 Exhaust air: at top of the machine
 Work lighting: on top of machine and with acid-proof
 Bottom of the machine: exhaust gas and acid leakage sensor
 Machine table legs: with pulley device and fixture and has high and low adjustment and locking function
 Door type: transparent PVC with two-piece outdoor door in order to isolate the acid gas protection operator.
 DI | N2 Gun: Placed on both sides of the machine.
 Warning light: A set of three-color signal warning lights
 Other: mechanical arm, oscillating mechanism, ultrasonic device
 Other machine type: Lift Off etching machine
 ITO etching machine
 High temperature etching machine



SPIN DRYER

Wafer Dryer

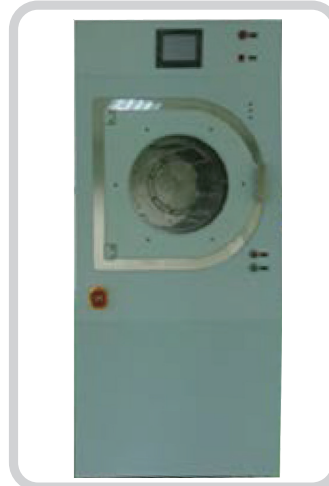
SK-60 S / D

Under 150 mm Wafer



SK-350 S

Under 300 mm Wafer



SK-80 S / D

Under 200 mm Wafer



SK-100

Horizontal Type / Multi- Cassette
Under 200 mm Wafer



CONVEYOR TYPE

Horizontal Type High Speed Developer / Etching
/ Photoresist Removal / Cleaner



Developing machine
MODEL:AGCD

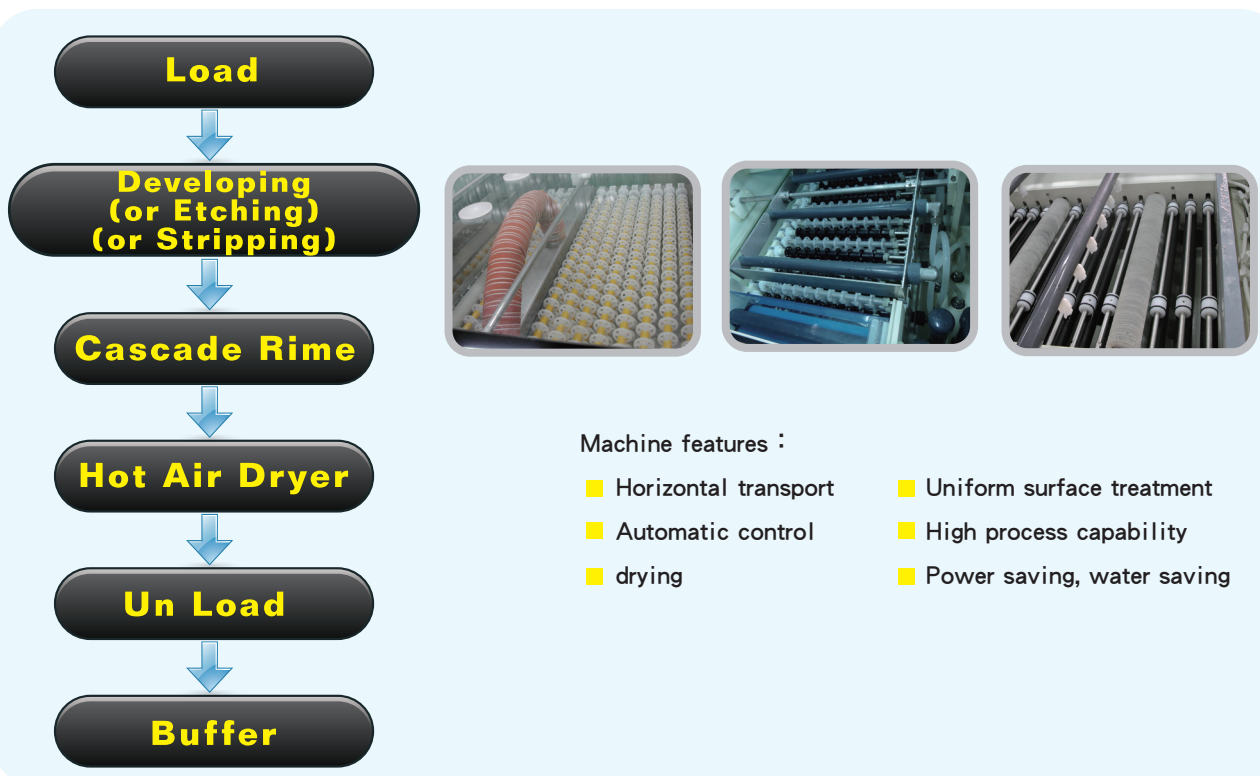


Etching & removal of
light resistance machine
MODEL:AGCE



Rinsing machine
MODEL:AGCC

Applications		Applied sizes
Touch Panel Display Panel		~ 550mm×650mm
LED	Semiconductor	2" ~12"
MEMS	Passive Component	



UV CLEANER

UV Rinsing, quality enhance machine



UV Rinsing, quality enhance machine
MODEL:AGCC-UV



UV quality enhance machine
MODEL:AG-UV

Applications :

- Light cleaning: clean the working surface
(helping to increase the light resistance and adhesion
at the working surface)
- Light modification: increase color saturation
for some materials
- Decomposition of hydrocarbon
- Sterilization
- Degreasing function

Light source band: UV-C (185nm & 254nm)

Effective illumination range: 100mm~2400mm

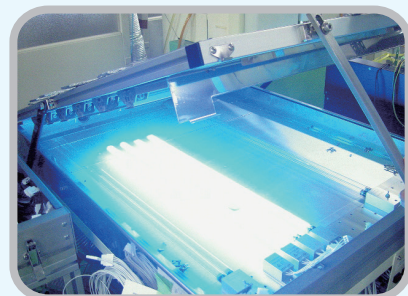


PHOTO MASK

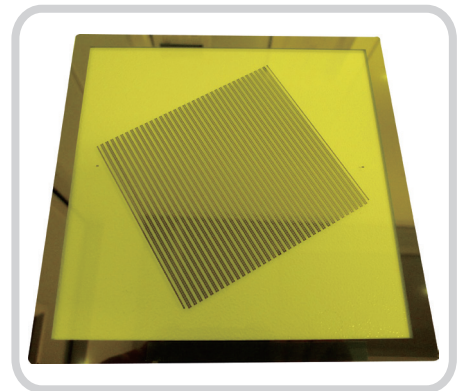
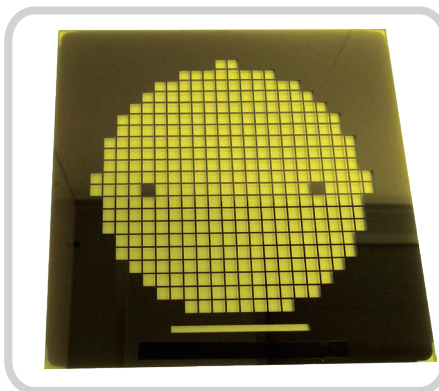
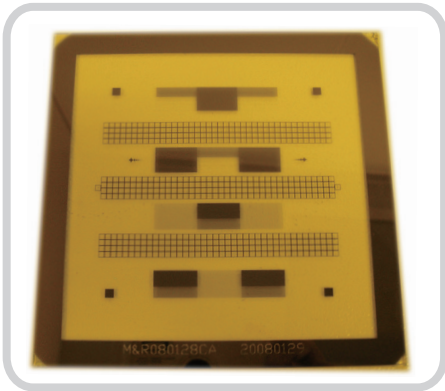


Photo Mask production

- Photo Mask includes : Main Mask
Re-produce Mask
- Photo Mask Size : 4" , 5" , 6" , 7" , 9" , 18" , 24"
* Also provide service to Re-produce
4" \ 5 " \ 6 " \ 7 " Masks *
- Photo Mask Style : Soda Lime , Fuse d, S il ica ,
Mylar Film, Quartz, Emulsion

Photo Mask features

Resolution (Write Grid)	Minimum Geometry	Chrome	Substrate
500nm	40 μ		Glass/Film
250nm	20 μ	YES	Glass
125nm	10 μ	YES	Glass
50nm	5 μ	YES	Glass
5nm	1 μ	YES	Quartz
1nm	0.5 μ	YES	Quartz

LEASE OF PROFESSIONAL PHOTOLITHOGRAPHY PROCESS CLEAN ROOM AND FOUNDRY PROCESS SERVICES

Chemicals



(Laboratory standard solution)

- 0.5/1.0N NaOH
- 1N HCl
- 0.1N Ce(SO₄)₂
- ECI machine standard
solution (need authorization)



(Etching products)

- Cerium oxide etching solution
- Aluminum etching solution
- Copper etching solution
- Gold etching solution
- Nickel etching solution
- Titanium tungsten etching solution
- Chrome etching solution
- Low dielectric material etching solution



(Light resistance products)

- Photoresist diluent
- Positive photoresist removal solution
- photoresist edge wash (EBR)
- Photoresist developer
- SU8 (0.2 μ m to 100 μ m)
- Photoresist PMMA



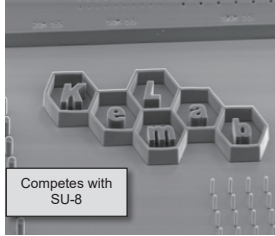
(Products for electroplating)

- Copper plating solution
- VMS
- Copper plating solution additive
- Nickel plating solution
- Tin silver plating solution

SHORT LEAD TIMES • COMPETITIVE PRICING • PRODUCT SUPPORT • RESIST CUSTOMIZATION

HARE SQ

Negative Tone Epoxy



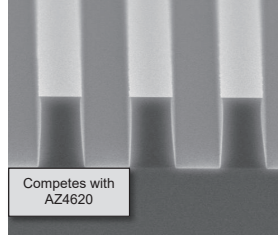
Competes with SU-8

NEGATIVE

- 2 - 200 μm FT
- APPLICATIONS: Microfluidics, MEMS

K-PRO

Advanced Packaging



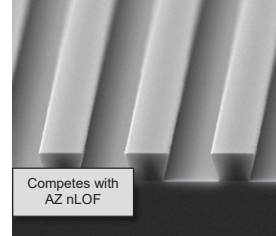
Competes with AZ4620

POSITIVE

- 5 - 50 μm FT
- APPLICATIONS: Advanced Packaging, TSV, Bumping, Plating

APOL-LO 3200

Negative Lift-Off



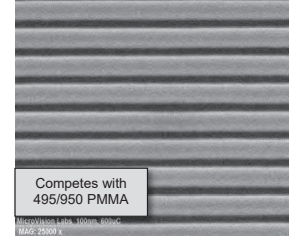
Competes with AZ nLOF

NEGATIVE

- 2 - 10 μm FT
- APPLICATIONS: Compound Semiconductors, LED

HARP eB & HARP-C

PMMA e-Beam / Copolymer



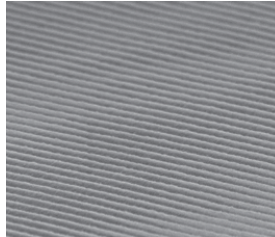
Competes with 495/950 PMMA

POSITIVE

- Up to 4.0 μm FT
- APPLICATIONS: Direct Write, T-gates, Wafer Thinning

KL 5302

Hi-Res Thin

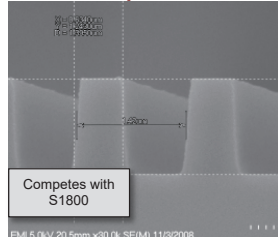


POSITIVE

- 0.2 μm FT
- APPLICATIONS: Interference Lithography, Diffraction Grating

KL 5300

General Purpose Thin



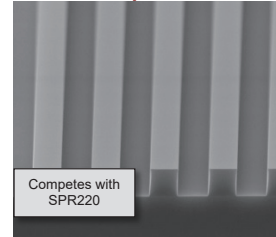
Competes with S1800

POSITIVE

- 0 - 2.5 μm FT
- APPLICATIONS: IC Fabrication

KL 6000

General Purpose Thick



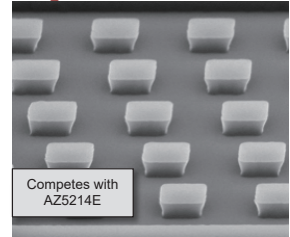
Competes with SPR220

POSITIVE

- 2.5 - 12 μm FT
- APPLICATIONS: MEMS, Bumping, Etching, Plating

KL IR

Image Reversal Lift-Off



Competes with AZ5214E

POSITIVE/NEGATIVE

- 1 - 2.5 μm FT
- Thermally stable high-res lift-off

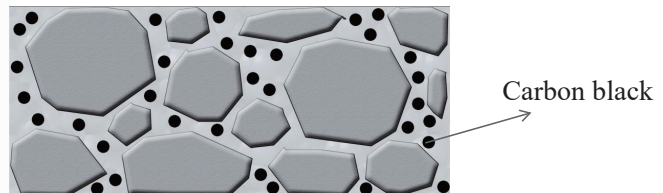
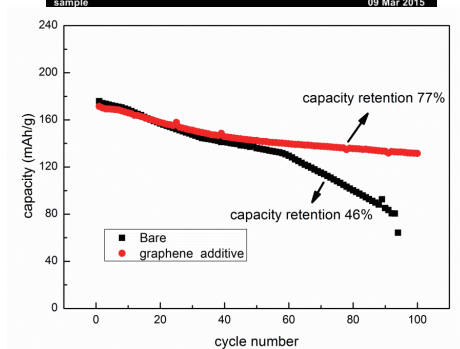
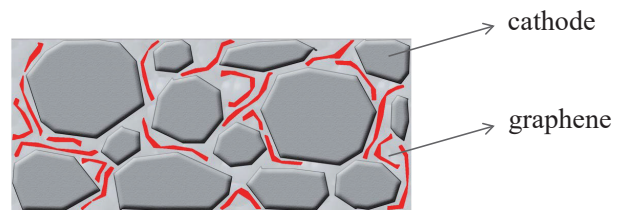
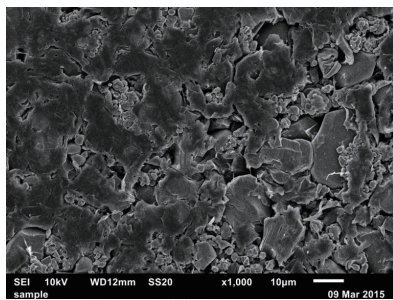
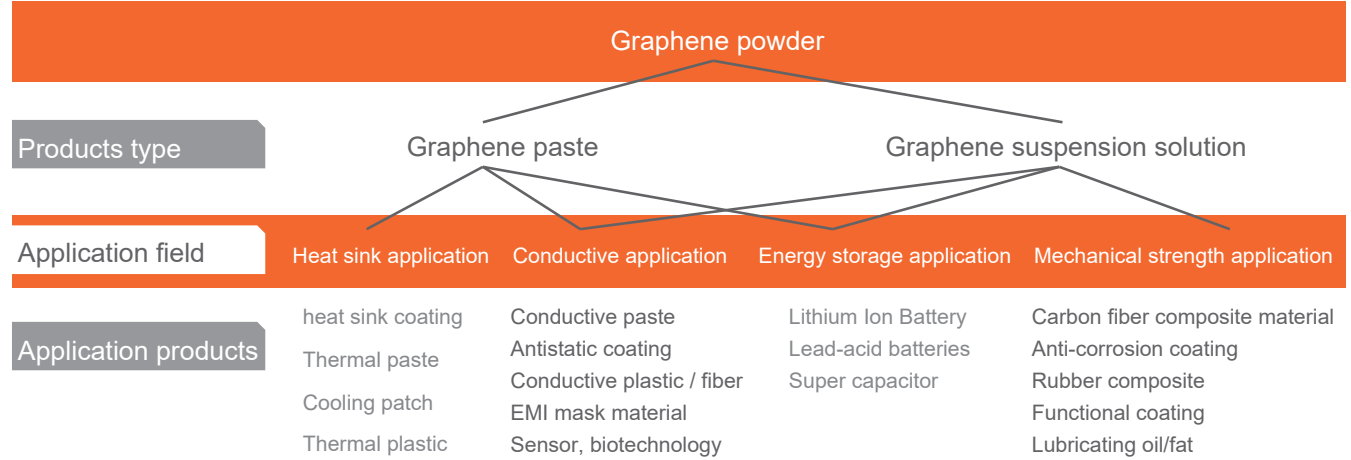
Photoresist Product Selector

Tone	Product Suite	Products	Competitive Product(s)	Film Thickness μm																				Exp λ	Dev							
				0.2	0.5	0.75	1	1.5	2	2.5	3	4	5	6	7	8	9	10	20	30	40	50	100	200	4-line 365nm	g-line 436nm	Broadband	TMAH 0.28N	Potassium Borate	HARE SQ	KOH	
Positive	KL5302 Hi-Res	KL 5302 Hi-Res																														
Positive		KL 5302																														
		General Purpose Thin	KL 5305	S1805™																												
			KL 5310	S1808™/S1811™																												
		KL 5315	S1813™/S1818™																													
Positive	KL6000	KL 6003	SPR™220-3.0/S1827™																													
		General Purpose Thick	KL 6005	SPR™220-4.5																												
			KL 6008	SPR™220-7.0																												
Positive	K-PRO	K-PRO 7																														
		Advanced Packaging	K-PRO 15	AZ® 4620																												
Negative	APOL-LO 3200	APOL-LO 3202	AZ®nLOF 2020																													
		Negative Lift-Off	APOL-LO 3204	AZ®nLOF 2035																												
			APOL-LO 3207	AZ®nLOF 2070																												
Pos/Neg	KL Image Reversal	KL IR-15 Lift-Off	AZ®5214E																													
			KL IR-15																													
Negative	HARE SQ	HARE SQ 2	SU-8 2																													
		High Aspect Ratio Epoxy	HARE SQ 5	SU-8 5																												
			HARE SQ 10	SU-8 10																												
			HARE SQ 25	SU-8 25																												
			HARE SQ 50	SU-8 50																												

Positive	HARP eB	500 HARP	495 PMMA AZ-A11	0.05	0.07	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1.1	2.0	2.5	3.0	4.0
		PMMA e-Beam	1000 HARP																
Positive	HARP-C	HARP-C	8.5 MAA EL 6-12																
		Copolymer e-Beam																	

Graphene

Applications for Graphene product

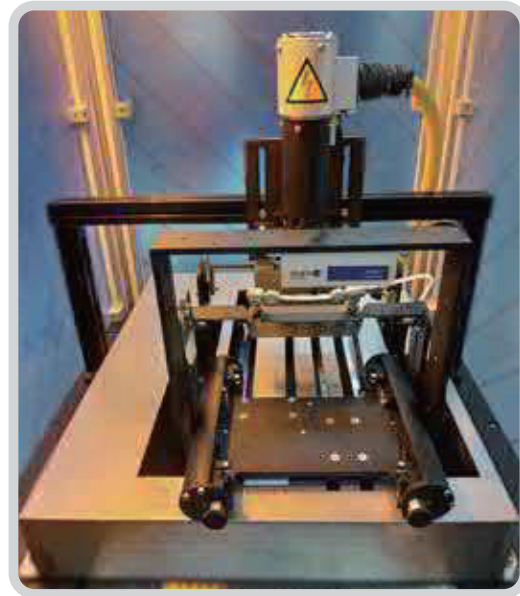


Comparison of graphene production methods

Preparation Method	Physical method (M&R Nano Technology Co)	Physical separation (currently no manufacturer)	Physical method (currently no manufacturer)	Chemical redox (numerous Zhongyuan manufacturers)
Yield	High	Low	Very Low	Mid
Graphene quality	High	Mid	Mid	Low
Mass production feasibility	High	Mid	Low	Mid
Pollution	Low	Mid	Low	Very High
cost	Very Low	Mid	High	Mid
Product Reliability	High	Low	Mid	Very Low
Investment cost per ton	Low	Mid	High	Mid

OTHER

Ultrasonic / IPA / X-ray / wind knife nano reticle (Pellicle / Reticle) cleaning machine



Items	Content
Cleaning speed	1.Stepper motor + stage 2.Provide a programmable operating interface and control system
Wind knife angle	Able to adjust height and angle manually
Pressure control for Air volume	Electronic pressure control
The whole conduit is made of dust-free grade pipeline	Provide high cleanliness piping (pipe diameter 6mm)
Security protection mechanism	The machine has a cover and detection for opening to reduce operator risk
Floor-standing design	Floor-standing design with three-color warning lamp
Anti-static voltage acrylic cover	The fireproof cover is fully equipped with anti-static electricity acrylic to reduce the particle adsorption caused by static electricity.
Air exhaust design	4~6" air exhaust hole
ULPA air filter	Class 1
SENSOR for sensing of Stage/Mask	SENSOR for sensing Stage/MASK position to starts and off the air blowing action
Control System	PLC+UI The control of movement stroke and the number of blows Can be set to Recipe The open cover transmission is controllable
Items equipped	<ul style="list-style-type: none"> ● Compressed air filter ● Ultrasonic oscillator ● Ion wind to eliminate static up electricity ● X-ray static electricity elimination system

MICROPROBE

Microprobe mold / Microprobe

(1) Microneedle mold :

Microneedle matrix, each needle of diameter 0.1mm ' For painless blood collection needles (diabetes) or microneedle cosmetic surgery, micro heat dissipation, optical or biomedical testing.

(2) 3D microstructure mold :

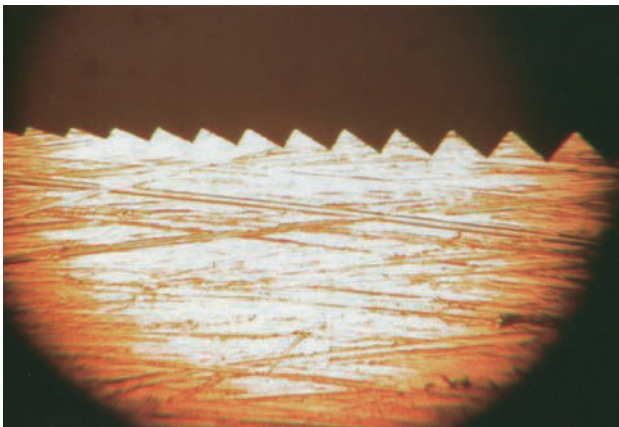
Micro concave lens, each concave lens has a diameter of about 50um that contains a plurality of concave lenses with about 15um diameter, Applicable in the solar, optical, and optoelectronic industries.

(3) 3D microstructure mold :

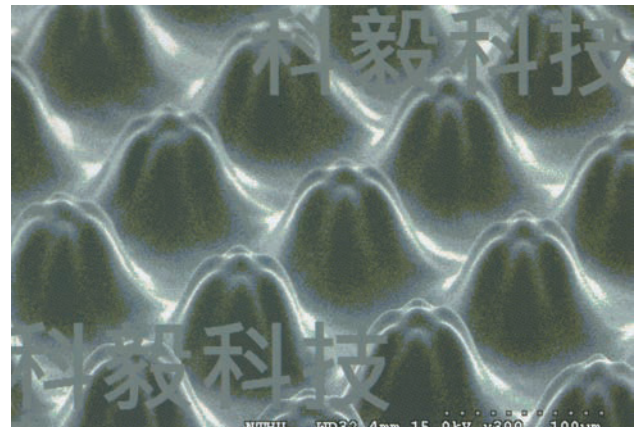
Micro-convex lenses, each with a diameter of about 100um. The convex lens contains multiple smaller convex lenses inside, and the height of the micro-convex lens is controllable. It can be used in the solar, optical and optoelectronic industries.

(4) Micro-convex lens mold :

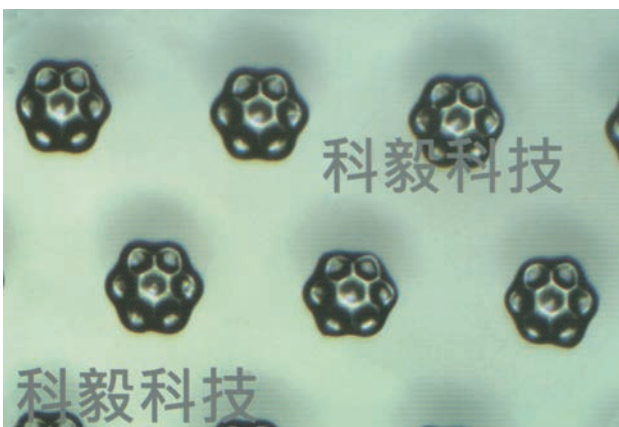
Micro-convex lens, each convex lens is with diameter of 100um. The height of diameter of micro-convex lens is controllable. It can use in solar energy, optics, optoelectronics industry.



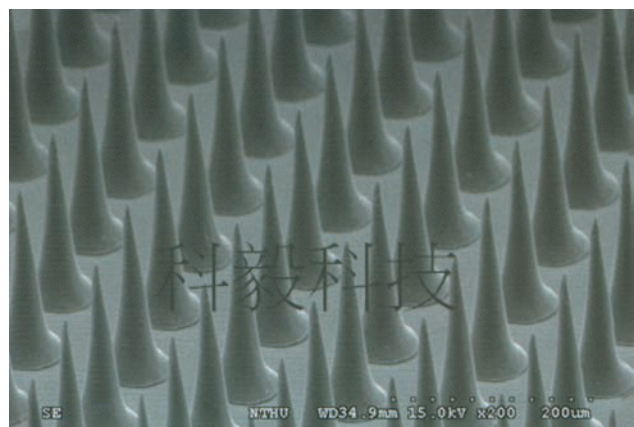
V-Cut Mold of Light Guide Plate



Integration One-Piece Microprocessing,
Multi-Angle convex lens

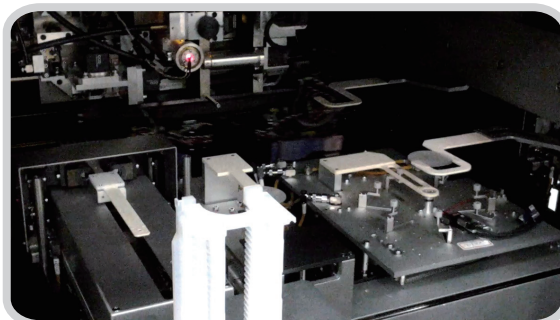


Integration One-Piece Microprocessing,
Multi-angle concave lens



Microprobe

STEPPER



Ultratech Stepper



TITAN & SPECTRUM



1500 Series With
Universal Robot



AP Series



1000 Series

ULTRATECH EXPOSURE STEPPER CONFIGURATION				
Model	1500 WAS.MVS	TITAN	Satan/Spectrum	AP200/300
Specification				
Wafer Size	2~8 inch	4~8 inch	4~8 inch	6~12 inch
Reticle Size	3x5 inch	5x5 inch	6x6 inch	6x6 inch
Reticle Library	NA	12-slot/Barcode reader	12-slot/Barcode reader	6-slot/Barcode reader
Projection Ratio	1:1	1:1	1:1	1:1
LENS Resolution	0.8~1.4um	2um	2um	2um
Field Size	35x20mm	44x22mm	44x22mm	44x26.7mm
Wavelength	GH+1(optional)	GH	GH/GHI	GHI
DOF	>6um	>6um	>6um	>6um
Illuminator	500w	1000w	1000/2000w	1200w
Uniformity	<3%	<3%	<3%	<3%
Wafer Handle	Autoloader or Miara Robot(Optional)	GENMARK robot with pre-aligner	GENMARK robot with pre-aligner	GENMARK robot with pre-aligner
Chamber	Optional	Standard	Standard	Standard
Scope	PSS/LED Semiconductor	Semiconductor	Semiconductor	Semiconductor

OTHER

Electroplating Machine

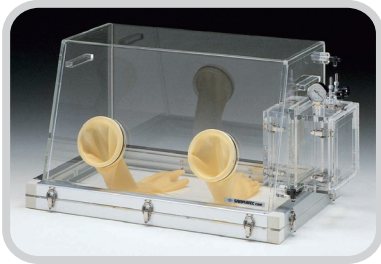


WFP-V4-2
Electroplating Machine



WFP-F3-6
Spray Type Electroplating Machine

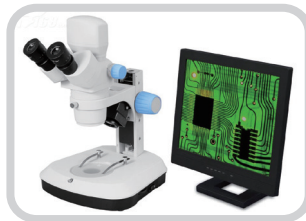
GLOVEBOX



MCROSCOPE



Metallographic microscope



Vidual microscope

Microscope related accessories :

**Eyepiece
Objective lens
Light source
Mobile platform**



Original substitutes and parts supply

Holder, Chuck, Fork, Filter, Mirror, Lens

Welcome to inquire for more details



<http://www.mrnanotec.com.tw>

Tel:886-3-4852036 , Fax:886-3-4852512

Add:No.10, Ln. 863, Gaoshi Rd.,

Yangmei Dist,Taoyuan County 326, Taiwan