EVG®610

Mask Alignment System

Introduction

The EVG®610 is a compact and multi-purpose R&D system that can handle small substrate pieces and wafers up to 200 mm.

The EVG610 supports a variety of standard lithography processes, such as vacuum-, hard-, soft-, and proximity exposure modes, with the option of back-side alignment. Moreover the system offers additional capabilities including bond alignment and nanoimprint lithography (NIL). The EVG610 offers quick processing and re-tooling for changing user requirements with a conversion time of less than a few minutes. Its advanced multi-user concept can be adapted from beginners to expert level, thus making it ideal for universities and R&D applications.

UV LED Exposure Optics

EVG's latest enhancement for exposure optics is an LED lamp setup. Low energy consumption and long lifetime are among the UV-LED light source's biggest advantages, as no warm-up or cool-down phase is required. In addition, LEDs need to be powered only during the exposure and the technology eliminates the obligation for typical facilities (exhaust, cooling gases), mechanical filter or regular mercury arc lamp changes. Exposure spectrum setup is easily and practically done in the user software interface. This ideal combination will not only minimize your running and maintenance costs but also add value in regards to the operator safety and environmental friendliness.

Features

- Wafer/substrate size from pieces up to 200 mm/8"
- Top-side and bottom-side alignment capability
- High-precision alignment stage
- Automated wedge compensation sequence
- Motorized and recipe-controlled exposure gap
- Supports the latest UV-LED technology
- Minimized system footprint and facility requirements
- Step-by-step process guidance
- Remote tech support
- Multi-user concept (unlimited number of user accounts and recipes, assignable access rights, different user interface languages)
- Agile processing and conversion re-tooling
- Table top or stand-alone version with anti-vibration granite table
- Additional capabilities:
  - Bond alignment
  - IR alignment
  - Nanoimprint lithography (NIL)

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Technical Specification Sheet

EVG®610 Mask / Bond / NIL Alignment Series

Mask - Substrate - Wafer Dimensions	
Mask Size	up to 5" / 7" / 9"
Substrate / Wafer Size	up to 100 / 150 / 200 mm
Wafer Thickness	up to 10 mm

Alignment Modes	
Top Side Alignment Accuracy	≤ ± 0.5 µm
Bottom Side Alignment Accuracy	≤ ± 2.0 µm
IR Alignment	≤ ± 2.0 µm

Top-Side Microscope			
Movement Range	100 mm	150 mm	200 mm
X	32 - 100 mm	32 - 150 mm	32 - 200 mm
Y	-50/+30 mm	-75/+30 mm	-100/+30 mm
Optional: Flat objectives for enhanced travel range, dark field objectives with ring lights for improved contrast			

Bottom-Side Microscope			
Movement Range	100 mm	150 mm	200 mm
X	30 - 100 mm	30 - 100 mm	30 - 100 mm
Y	± 12 mm	± 12 mm	± 12 mm
Optional: Flat objectives for enhanced travel range, dark field objectives with ring lights for improved contrast			

Exposure Optics		
Wavelength Range	NUV: 350 - 450 nm DUV: down to 200 nm (opt)	
Exposure Source	Mercury Lamp 350 W, 500 W UV LED Lamp house	
Uniformity	150 mm	200 mm
	≤ 3%	≤ 4%
Filter Changing Unit	Mercury Lamp: mechanical LED Light Source: SW tunable	

Exposure Modes	
Contact	soft, hard, vacuum (adjus-table)
Proximity Exposure Gap	1 - 1000 µm
Gap Setting Accuracy	1 µm
Modes	constant power CP (Hg/LED) constant dose CD (Hg/LED) constant time CT (Hg/LED) constant intensity CI (LED)
Options	interval, flood, sector exposure

Min. Feature Size to Pattern on Hg / LED Lamphouse (NUVsetup)			
Substrate / Wafer Size	100 mm	150 mm	200 mm
Vacuum Contact Mode	≤0.7 µm	≤0.8 µm	≤1.0 µm
Soft Contact	≤2.0 µm	≤2.2 µm	≤2.4 µm
Proximity Mode @ 20 µm Gap	≤3.4 µm	≤3.6 µm	≤3.8 µm

Optional features | Bond Alignment & NIL	
Bond Alignment Accuracy	≤ ± 2.0 µm
Soft NIL Alignment Accuracy	≤ ± 2.0 µm
NIL Soft Stamp Resolution	≤ 50 nm pattern resolution

Utilities	
Vacuum	< 150 mbar
Compressed Air	6 bar
Nitrogen	optional: 2 or 6 bar
Exhaust - Mercury Lamp house	required
Exhaust - LED Lamp house	not required

Alignment Stage	
MA movement range	BA movement range
X: ≥ ± 5 mm	X: ≥ ± 5 mm
Y: ≥ ± 5 mm	Y: ≥ ± 5 mm
Rotation: ≥ ± 5.0°	Rotation: ≥ ± 5.0°
Resolution	0.1 µm
Contact Force	adjustable 5 N - 80 N
Wedge Compensation	fully automatic, adjustable

System Control (SW & User Interface)
Operation System: Microsoft Windows
File Sharing and SW Backup Solution
Unlimited Storage of Recipes, Parameters stored in Process Recipe
Multi-Language User GUI & Support: EN opt.: CN, DE, FR, IT, JP, KR
Real-Time Remote Access, Diagnostics and Troubleshooting

Dimensions / Footprint	
Footprint	0.55 m²
Height	1.01 m
Weight table top	~ 250 kg

Get in touch:

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