EVG®620 NT
EVG®6200 NT
Mask Alignment Systems
(semi-automated / automated)

Introduction

State-of-the-art mask alignment technology on a minimized footprint area
The EVG620 NT Gen2 and EVG6200 NT Gen2 mask aligners are exemplary production systems for wafer sizes up to 200 mm. The systems provide state-of-the-art mask alignment technology on a minimized footprint area combined with the utmost throughput and optimized total cost of ownership. Operator-friendly software, minimized time for mask and tooling changes, as well as efficient worldwide service support make them the ideal solution for any manufacturing environment. The EVG620 NT Gen2 and EVG6200 NT Gen2 mask alignment systems are equipped with integrated vibration isolation and achieve excellent exposure results for a wide range of applications, such as exposure of thin and thick resists, patterning of deep cavities and comparable topographies, as well as processing thin and fragile materials such as compound semiconductors. Furthermore, the EVG’s proprietary SmartNIL technology is supported on all system configurations.

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”
- Fragile, thin or warped wafer handling of multiple wafer sizes with quick change-over time
- Automated contact-free wedge compensation sequence with proximity spacers
- Auto origin function for precise centering of alignment key
- Dynamic alignment function featuring real-time offset correction
- Supports the latest UV-LED technology
- Rework sorting wafer management & flexible cassette system
- Manual substrate loading capability on automated system
- Field upgradeable from semi-automated to fully automated version
- Minimized system footprint and facility requirements
- Multi-user concept (unlimited number of user accounts and recipes, assignable access rights, different user interface languages)
- Agile processing and conversion re-tooling
- Remote tech support and SECS / GEM compatibility
- Additional capabilities:
  - Bond alignment
  - IR alignment
  - Nanoimprint lithography (NIL)

Contact
EV Group Europe & Asia-Pacific GmbH
DI Erich Thallner Strasse 1
4782 St. Florian am Inn
Austria
+43 7712 53110
Contact@EVGroup.com

www.EVGroup.com
# Technical Specification Sheet

**EVG®620 NT / EVG®6200 NT**

**Mask / Bond / NIL Alignment Series**

## Mask - Substrate - Wafer Dimensions

<table>
<thead>
<tr>
<th>Mask Size</th>
<th>up to 7&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substrate / Wafer Size</td>
<td>up to 150</td>
</tr>
<tr>
<td>Wafer Thickness</td>
<td>up to 10 mm</td>
</tr>
</tbody>
</table>

## Alignment Modes

| Top Side Alignment Accuracy | ≤ ± 0.5 µm |
| Bottom Side Alignment Accuracy | ≤ ± 1.0 µm |
| IR Alignment | ≤ ± 2.0 µm |

## Top-Side Microscope

### Movement Range

<table>
<thead>
<tr>
<th>EVG620 NT Gen2</th>
<th>EVG6200 NT Gen2</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>32 - 150 mm</td>
</tr>
<tr>
<td>Y</td>
<td>± 70 mm</td>
</tr>
</tbody>
</table>

Recipe controlled microscope illumination spectrum

Optional: Flat objectives for enhanced travel range, dark field objectives with ring lights for improved contrast

## Bottom-Side Microscope

### Movement Range

<table>
<thead>
<tr>
<th>EVG620 NT Gen2</th>
<th>EVG6200 NT Gen2</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>56/78 - 150 mm</td>
</tr>
<tr>
<td>Y</td>
<td>± 12 mm</td>
</tr>
</tbody>
</table>

Recipe controlled microscope illumination spectrum

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 or 1000 W
- UV LED Lamp house

**Uniformity**

≤ 4%

**Filter Changing Unit**

- Mercury Lamp: mechanical
- LED Light Source: SW tunable

## Min. Feature Size to Pattern on Hg / LED Lamphouse (NUVsetup)

<table>
<thead>
<tr>
<th>Substrate / Wafer Size</th>
<th>150 mm</th>
<th>200 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacuum Contact Mode</td>
<td>≤ 0.8 µm</td>
<td>≤ 1.0 µm</td>
</tr>
<tr>
<td>Soft Contact</td>
<td>≤ 2.2 µm</td>
<td>≤ 2.4 µm</td>
</tr>
<tr>
<td>Proximity Mode @ 20 µm Gap</td>
<td>≤ 3.6 µm</td>
<td>≤ 3.8 µm</td>
</tr>
</tbody>
</table>

## Exposure Modes

<table>
<thead>
<tr>
<th>Contact</th>
<th>soft, hard, vacuum (adjustable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximity Exposure Gap</td>
<td>1 - 1000 µm</td>
</tr>
<tr>
<td>Gap Setting Accuracy</td>
<td>1 µm</td>
</tr>
</tbody>
</table>

**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

## Optional features | Bond Alignment & NIL

| Bond Alignment Accuracy | ≤ ± 2.0 µm |
| Soft NIL Alignment Accuracy | ≤ ± 2.0 µm |
| NIL Soft Stamp Accuracy | ≤ 50 nm pattern resolution |

## Utilities

<table>
<thead>
<tr>
<th>Vacuum</th>
<th>&lt; 150 mbar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed Air</td>
<td>6 bar</td>
</tr>
</tbody>
</table>

Nitrogen: optional: 2 or 6 bar

Exhaust - Mercury Lamp: required

Exhaust - LED Lamp: not required

## 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**

## Alignment Stage

- **MA movement range**
- **BA movement range**

| X | ≥ ± 5 mm |
| Y | ≥ ± 5 mm |
| Rotation: | ≥ ± 3.0° |
| Resolution | 0.1 µm |
| Contact Force | adjustable 5 N - 40 N |

**Wedge Compensation**

- fully automatic, adjustable

## Dimensions / Footprint

- **Footprint** 1.95 m²
- **Height** 2.10 m
- **Weight** ~ 980 kg

### Get in touch:

Contact@EVGroup.com