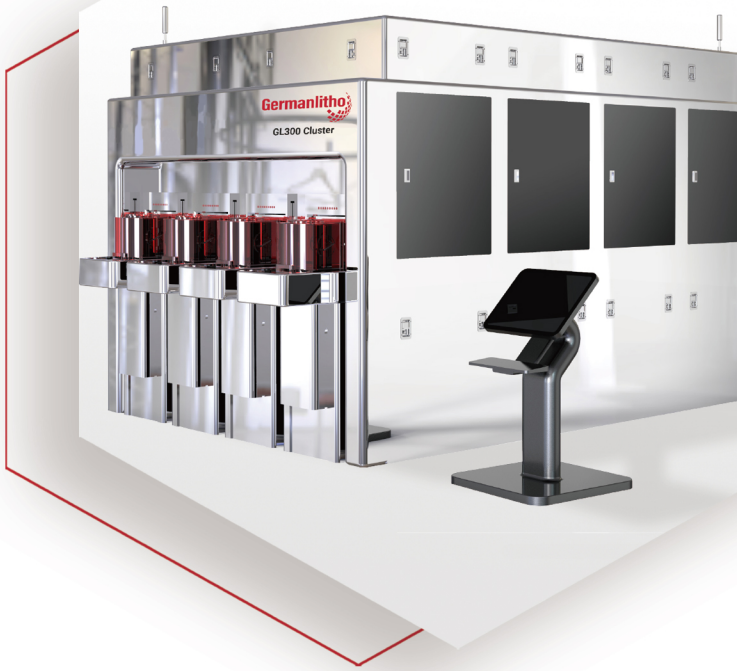
Germanlitho
天仁微纳

GL300 Cluster

200/300 mm Fully-automatic nanoimprint lithography mass production system



Introduction

The GL300 Cluster is a modular, fully-automatic nanoimprint lithography mass production system combining all related NIL pre-process steps including wafer cleaning, plasma surface treatment, resist spin-coating, baking, cooling and full-field UV-NIL into a single platform for 200/300mm wafers. GermanLitho's proprietary CLIV (Contact Litho into Vacuum) technology guarantees the accuracy and replication fidelity of imprinted structures. The GL300 Cluster enables fully-automatic mass production of high-resolution (Higher than 10nm*), high-aspect-ratio (Greater than 10: 1 *) nanostructures. The modular design allows users to freely configure for cleaning, coating, baking, cooling, plasma surface treatment, AOI inspection, Post Cure, and nanoimprinting according to their individual process requirements and production cycle time, achieving optimal production efficiency. From the replication and exchange of flexible composite working stamps, to NIL wafer pre-processing and high-resolution nanoimprinting, all process steps are carried out full-automatically in a closed and clean mini-environment, to guarantee the imprinting quality. The GL300 Cluster nanoimprint system is suitable for large-scale mass production of DOEs, AR/VR waveguides (including slanted gratings), WGPs, metalenses, biochips, LED PSSs, MLAs and myriad other products.

Features

- Volume-proven fully-automatic 200/300mm nanoimprint lithography mass production system for high-resolution, high-aspect-ratio nanostructures.
- CLIV technology guarantees the accuracy and replication fidelity of imprinted structures.
- Cassette to cassette automatic wafer loading/unloading and optical pre-alignment.
- Automatic flexible composite working stamp replication and working stamp loading/unloading, suitable for mass production.
- Fully-automatic NIL substrate pretreatment processes, including substrate cleaning, spin-coating, baking, cooling and optional plasma surface treatment.
- Fully-automatic nanoimprinting processes, including working stamp replication, alignment, imprinting, curing and separation.
- All process steps are carried out in a closed and clean mini-environment, to guarantee imprinting quality.
- High power UV LED panel (365nm, light intensity >1000mW/cm²) with water cooling, light sources of different power and wavelength can be provided according to customer specifications, perfectly supporting a variety of commercial nanoimprint materials.
- Throughput of up to 100 wph, suitable for large-scale mass production of DOEs, AR/VR waveguides (including slanted gratings), WGPs, metalenses, biochips, LED PSSs, MLAs and myriad other products.
- Based on our experiences, we have created nanoimprint process and material starter-kits to be delivered with our products, enabling our customers to immediately make use of the world-leading level of nanoimprint technology.

Technical Data

Substrate size	200mm (open cassette, customized SMIF) / 300mm (FOUP) (Special sizes can be customized)
Substrate material	Silicon, glass, quartz, plastic, metal, etc.
Wafer loading & unloading	Cassette to cassette automatic loading/unloading
Wafer pre-alignment	Optical pre-alignment
Supported NIL process	UV-NIL with GermanLitho proprietary CLIV (Contact Litho into Vacuum) technology ensures the accuracy of imprinted structures and replication fidelity, suitable for imprinting of high resolution, high aspect ratio nanostructures
Pre-treatment process steps for nanoimprint	Wafer Cleaning (brush, two-fluid, megasonic), spin-coating, baking, cooling, Plasma surface treatment etc.
Resolution	Higher than 10 nm*
Aspect ratio	Greater than 10:1 *
Residual layer thickness（RLT）	Less than 10nm*
UV curing light source	High power UV LED panel light source (365nm), light intensity >1000mW/cm², water cooling, (2000mW/cm² optional)
Mini-environment and climate control	Standard, external environment class 100, internal environment better than class 10*
Automatic imprinting	Supported
Automatic separation	Supported
Automatic working stamp replication	Supported
Automatic working stamp exchange	Supported
Automatic alignment	Optional
Post Cure	Optional
Online AOI inspection	Optional
Throughput	Up to 100 wph*

* Parameters depend on the mold, material, process and operating environment, not equipment limits
* GermanLitho reserves the right to interpret the information

OUR CONTACT!

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