Germanlitho
天仁微纳

GL4 HE & GL8 HE & GL12 HE

100mm & 200mm & 300mm UV/Thermal nanoimprint lithography equipment

Introduction

The GL4 HE & GL8 HE & GL12 HE series nanoimprint lithography equipment combines UV-NIL and thermal-NIL (Hot Embossing - HE) functions, allowing UV-NIL and thermal-NIL processes to be carried out separately or simultaneously in-situ. It enables semi-automatic imprinting of high-resolution (higher than 10nm *) and high-aspect-ratio (greater than 10: 1 *) nanostructures on up to 100mm/200mm/300mm wafers, supporting rigid or flexible molds. Working stamps, which have high resolution and a long service life, can be replicated by the machine in a wide range of materials, significantly reducing the cost of large-area molds in nanoimprint processes. The use of uniform gas pressure guarantees large-area imprinting uniformity and replication fidelity. The GL4 HE & GL8 HE & GL12 HE are suitable for R&D or small volume production of DOEs, AR / VR waveguides (including slanted gratings), WGPs, metalenses, biochips, LED PSSs, MLAs and myriad other applications.

Features

- Full-field nanoimprint equipment combining UV-NIL and thermal-NIL functions, for replication of high-resolution, high-aspect-ratio nanostructures on up to 100mm/200mm/300mm wafers.
- UV- and thermal-NIL processes can be carried out separately or simultaneously in-situ in a single imprint sequence.
- Uniform gas pressure up to 50/80 bar guarantees large-area imprint uniformity and replication fidelity.
- Internal working stamps replication, reducing the cost of large-area molds in nanoimprint processes.
- High power UV LED panel (365nm, light intensity >1000mW/cm²), light sources of different power and wavelength can be provided according to customer specifications, perfectly supporting a variety of commercial nanoimprint materials.
- Mini-environment as standard.
- 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	≤300x300mm (GL12 HE) ≤200×200mm （GL8 HE） ≤100x100mm (GL4 HE)
Mold size	≤300x300mm (GL12 HE) ≤200×200mm （GL8 HE） ≤100x100mm (GL4 HE)
Supported NIL process	UV-NIL function Thermal-NIL (Hot embossing - HE) function Simultaneous UV-NIL & thermal-NIL in-situ in one imprint sequence
Wafer loading & unloading	Manual loading and unloading
Pressure application method	Uniform gas pressure guarantees large-area imprint uniformity
Imprint pressure	≤50bar (GL12 HE) ≤50bar (GL8 HE, 80bar customized) ≤80bar (GL4 HE)
Imprint Temperature	RT ~ 250°C, setting accuracy ±1°C
Resolution	Higher than 10nm*
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) ，Exposure area≥300×300mm （GL12 HE） / ≥200×200mm （GL8 HE） / ≥100×100mm （GL4 HE） light intensity >1000mW/cm² (2000mw/cm² optional) Exposure uniformity better than 90%*
Mini-environment and climate control	Standard, external environment class 100, internal environment better than class10*
Automatic imprinting	Supported
Automatic working stamp replication	Supported
Automatic alignment	Optional (accuracy greater than ±1um*)

* 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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