Nano System Solutions

V-TECHNOLOGY

D-light DL-1000 Series

MASKLESS PHOTOLITHOGRAPHY SYSTEM



Minimum Pixel Size : 0.5µm

High Throughput: >2000mm²/min

3D patterning exposure

Coaxial observation optics with the exposure optics

2000mm²/min High-speed drawing LD Light Source	**Unique Autofocus technology** Optical AF ± 200 µm	**Thick Film resist** Thickness 100 µm or more	**DXF/GDS Ⅱ supports data** Data Conversion Software included
3D Exposure 256 Grayscale exposure	**TTL Auto Alignment** High precision Overlay	**Smooth Curves Representation** High definition Exposure Mode	**High definition Mode** Submicron Address grid
0.5µm Structured High Magnification Optical System	**Backside Alignment** Backside Mark standard Alignment support	**Pitch Measurement** Used Coaxial Camera Observation Mode	**Excellent Maintainability** Consumables replacement almost none

NanoSystem Solutions, Inc.

* This catalog is current as of February 2022. Please note that the product names, specifications, appearance, etc. described are subject to change without notice.

PRS2205005

Expand new possibilities for direct patterning **DL-1000 Series**

The DL-1000 Series is an exposure device that can directly project a pattern designed by CAD onto a substrate. Configured with a digital mirror device (DMD) that operates 780,000 mirrors at high speed, the reduced projection optical system enables direct drawing of the patterns of 1 μm or less at ultra-high speed. Since it is not necessary to make a mask, in addition to the effect of reducing the mask production cost, the throughput of R&D and product prototyping is improved. By arranging the camera for imaging coaxially with the exposure optical system, it can also be used as a measuring instrument for highly accurate alignment and observation of exposure conditions. LED is used as the standard exposure light source for long-term stable operation. In addition, high quality 3D exposure is possible due to its high non-interference property. If you are looking for ultra-high speed, we also offer a model equipped with a high-power Laser Diode, which can also be used in industrial production. Taking advantage of the total cost, the DL-1000 Series is used in many product development and research sites (MEMS / sensors / optodevices / micromolds / nanoimprint / etc ...) and industrial production sites (reticle / photomask manufacturing). / It is widely used in micro precision mold manufacturing / compound semiconductor manufacturing / Wafer Level Package / etc ...).

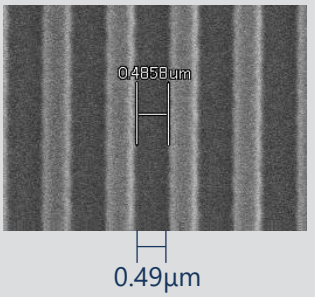
Main Specifications

Light source	LED or LD
Minimum pixel size	1μm(standard) or 0.5μm
Exposure area	□100mm or □200mm or □300mm
Autofocus	Image contrast method through exposure optics
Drawing speed (Resolution 1 μm)	>570mm²/min （LED Scanning） >2,000mm²/min （LD Scanning）
Superposition	TTL（Through The Lens）method Manual / Automatic mode
Address grid size	25nm～
Size / height / weight	1.1m □ / (H)1.6m / 1,000kg (□200mmType)
Utility	Power supply: AC100V,15A, 50/60Hz CDA: >0.6MPa , >6.5NL/min Vacuum: <-24kPa , >12L/min

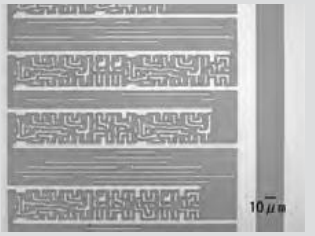
Feature

- Minimum pixel size: 0.5 μm
- Selectable “Step & Repeat mode” and “Scanning mode”
- Light source: LED and LD can achieve long life and high maintainability..
- High throughput: > 2,000 mm2 (in case of LD)
- Achieves real-time performance with a unique autofocus optical system
- Since original image processing for the TTL method by simultaneously observing the exposure pattern and the under layer pattern, High-precision overlay accuracy is possible. (≦ 0.5 μm)
- DXF and GDSII format data conversion tools are available
- Grayscale image transfer is also possible (256 levels)
- Submicron grid size for High definition mode

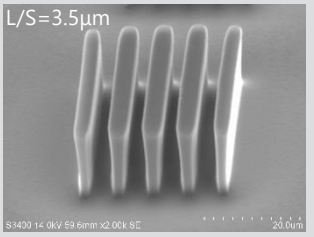
■ 0.5μm Line



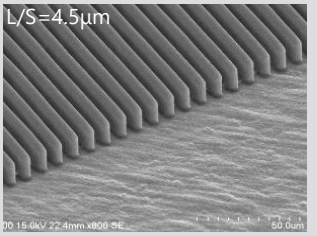
■ 2D pattern



■ Dry Film Resist

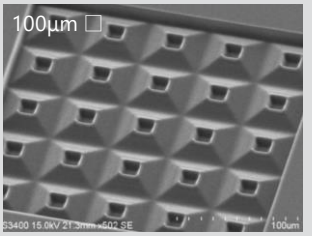


Dry Film t20μm

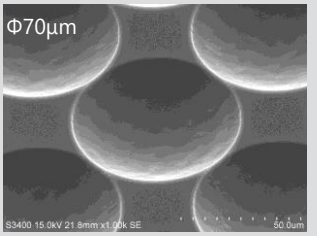


Dry Film t15μm

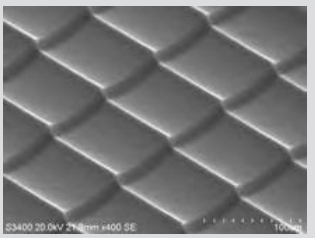
■ 3D exposure



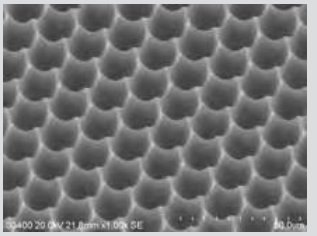
Tile



Microlens array



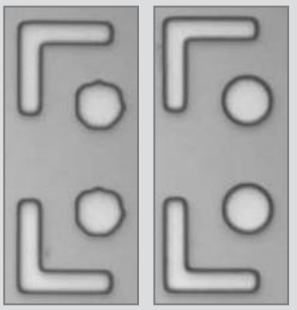
Tile



Hexagon precision concave

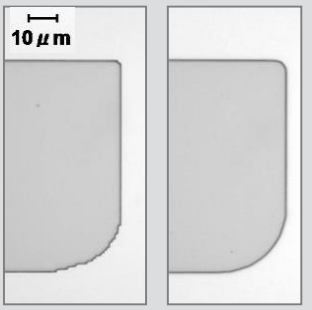
■ High definition mode

Circle（Φ5μm）



Normal exposure　High definition exposure

Curved area



Normal exposure　High definition exposure

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