holotools
a temicon trademark

temicon
micronano solutions

Microlens Array Molds by Interference Lithography

Light management using microlens arrays

Microlens arrays control the light output of lighting elements to achieve homogenisation or beam shaping. Unlike most other microlens arrays, IL-MLA have no dead area between the lenses. They are arranged in a honeycomb geometry with threedimensional intersections between the single lenses. Customer specified IL-MLAs can be made in a variety of lens diameters and lens heights, and even with an elliptical light control. The IL-MLA series was specifically designed as a generic microlens array for R&D work, as well as for product and process development.

How IL-MLA works

Microlens arrays are flat optical elements that can be used to control the directional output of light sources and backlight units. The shape of IL-MLAs redirects incident light in a controlled and efficient way in order to achieve a homogenisation effect. IL-MLAs can also be used for decoupling light out of LEDs / OLEDs and for coupling solar radiation into flexible solar cells (light trapping).

IL-MLA applications

- Homogenisation of light output
- Control of the angular distribution in lighting systems
- Optical films
- Multifunctional films in backlight units for flat panel display applications
- LED/ OLED/ BLU and laser applications
- Thin-film and organic photovoltaics

Users of IL-MLA molds

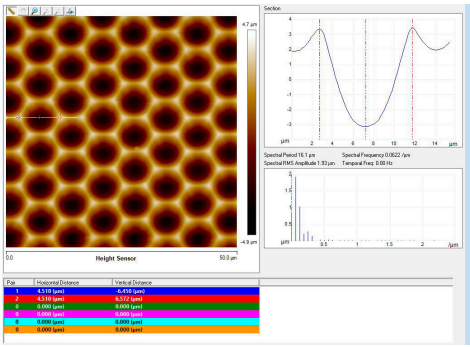
- Film manufacturers – for product and process development work
- R&D institutes – for research activities on micro-optical structures
- Equipment manufacturers for injection molding, thermal embossing and roll-to-roll production equipment – as a reference to demonstrate the technical capabilities

IL-MLA standard molds are for use in research & development
Commercial use requires a royalty agreement.

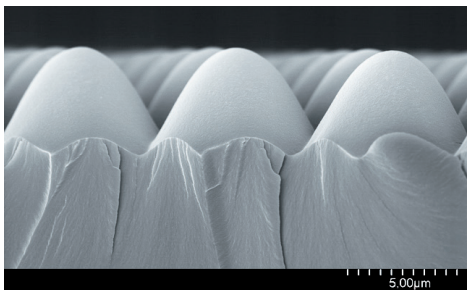
Specifications

	IL-MLA-01	IL-MLA-02
Structure type	Microlens array	Microlens array
Structure geometry	Hexagonal / Honeycomb	Hexagonal / Honeycomb
Lens diameter	9 µm	9 µm
Average lens height	5.2 µm	6.5 µm
Material	Nickel	Nickel
Mold thickness	100 µm – 300 µm	100 µm – 300 µm
Mold size	**120 mm x 120 mm**	**120 mm x 120 mm**
Active area	**100 mm x 100 mm**	**100 mm x 100 mm**

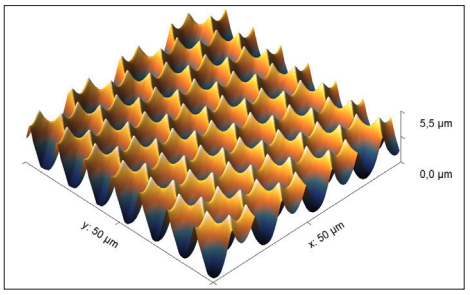
IL-MLA



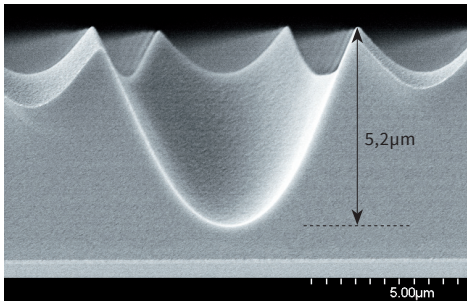
IL-MLA-02 measurement



IL-MLA-01 replica



IL-MLA-01 mold surface



IL-MLA-01 mold cross section

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