



## PL Series

**EZImprinting** introduces a bench-top, stand-alone nanoimprint platform: The PL series **PL200/400/600**.

This platform provides a mechanical stage with micro-positioning fixtures for mounting a nanoimprint chamber, UV-curing source, and alignment microscope.

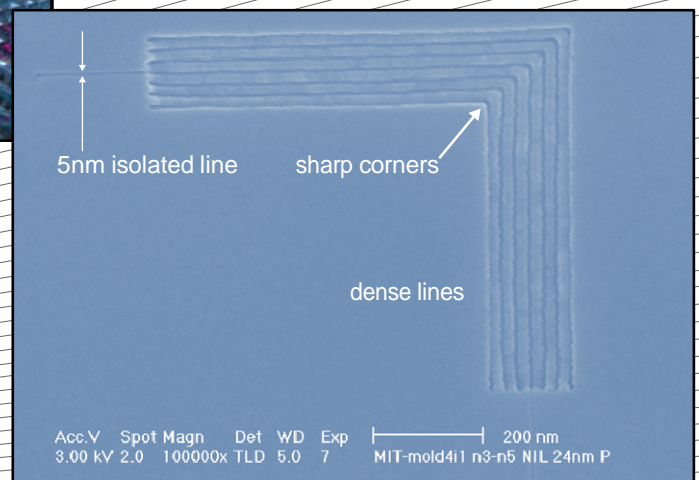
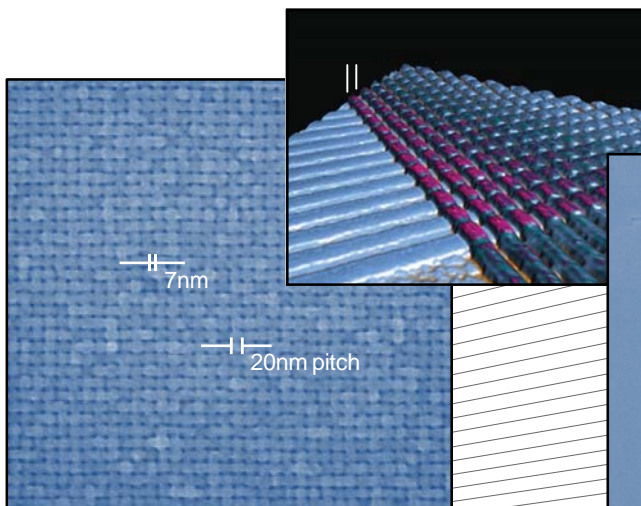
It functions both as a nanoimprint system and as a traditional mask aligner while providing programmable, automatic control of your entire imprinting process.

### EZImprinting Advantages:

- Sub-10nm resolution with 99% yield
- Supports both hard and soft molds
- Variable mold and substrate sizes offer unparalleled convenience and flexibility
- Auto-Release process prevents mold/substrate damage during separation and maximizes yield per imprint
- Versatile processes for a wide variety of applications: optical devices, displays, data storage, biomedical devices, semiconductor IC's, chemical synthesis, and advanced materials
- Programmable PLC with touch-screen user interface allows process control through customized parameters
- Proprietary UV-curable nanoimprint resist has no limitations on hardness or thickness, and is compatible with traditional photolithography processes

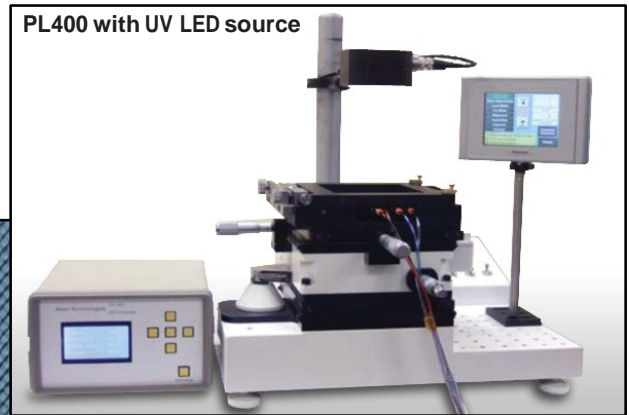
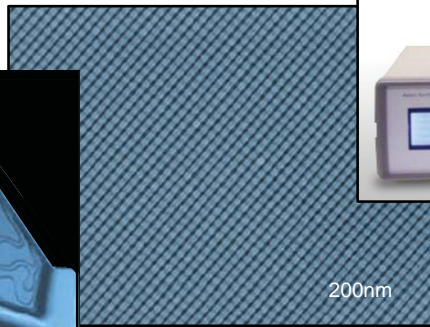
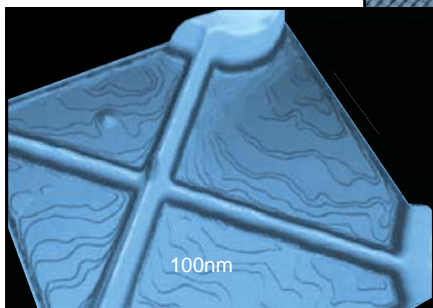


PL400 with alignment microscope



# EZ Imprinting

## PL Series



### EZImprinting process specifications:

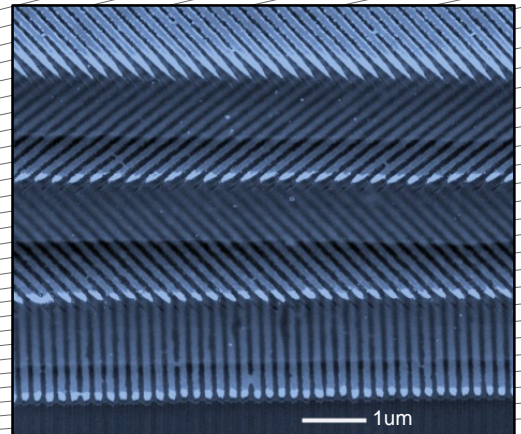
	PL200	PL400	PL600
Substrate size	2" standard (smaller sizes, irregular shapes compatible)	4" standard (smaller sizes, irregular shapes compatible)	6" standard (smaller sizes, irregular shapes compatible)
Imprint area	Same as wafer size	Same as wafer size	Same as wafer size
Mold plate size	2" and 1"	4", 2" and 1"	6", 4", 2" and 1"
Imprint pressure	1 psi standard		
Mold/substrate Auto-Release	Included- no special tools needed		
UV exposure time	2-3 min at 95% intensity level		
Alignment capability	X, Y, Z and theta (accuracy 2 μm)		

### Technical specifications:

Control box operating pressure 45 psi standard  
 Control box vacuum <-14 psi  
 LED light source 2" diameter, >5W

Filtered pressure source 70-100 psi  
 Vacuum source <-14 psi  
 Power 110-220V, 50/60Hz  
 Cleanroom class Class 1000 or better

Stage 17" x 15.5" x 10.5", 80 lbs.  
 Touchscreen controller 6" x 8" x 2.5", 1.5 lbs.  
 Electronic control box 17" x 14.5" x 5.5", 11.5 lbs.  
 LED UV light source 11" x 11" x 4.5", 7 lbs.





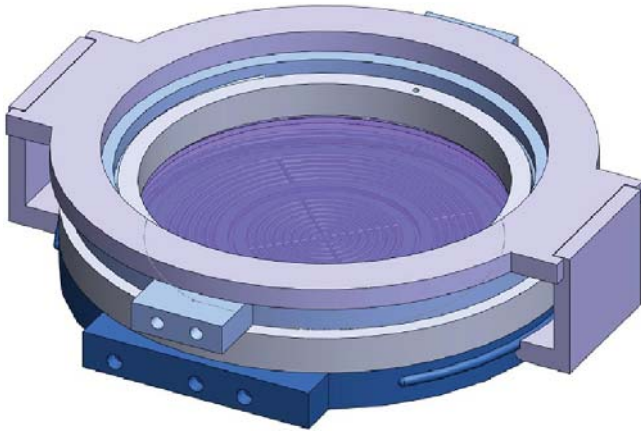
## CB Series

### EZImprinting Advantages:

#### CB Series: CB200, CB400, CB600

- Easy to use, low cost solution
- Sub-10nm resolution with 99% yield
- Supports both hard and soft molds
- Variable mold and substrate sizes offer unparalleled convenience and flexibility
- Auto-Release process prevents mold/substrate damage during separation and maximizes yield per imprint
- Programmable PLC with touch-screen user interface allows process control through customized parameters
- Proprietary UV-curable nanoimprint resist has no limitations on hardness or thickness, and is compatible with traditional photolithography processes

#### CB400 module:



Imprint yields are enhanced by the CB Series' double-chamber configuration

If your nanoimprinting needs do not require multi-layer alignment, EZImprinting provides a cost-effective solution. Our stand-alone modules are specifically designed for users who do not require alignment, or only need simple directional alignment.

Our touch-screen user interface provides programmable automatic control of the entire imprinting process. The CB series can be upgraded to the alignment-capable PL series by mounting the CB module to our platform stage.

## LS Series: LS400 and LS800

EZImprinting provides a programmable UV LED flood light source: the **LS400** and **LS800**.

Light intensity can be adjusted from 1% to 100% of a maximum of ~50 mw/cm<sup>2</sup>. Exposure time can be set from 0.1 to 999.9 seconds.

The **LS400** can fully cure imprint resist over a 4 inch diameter area, and the **LS800** can fully cure up to an 8 inch diameter substrate.

#### LS400





## Imprint molds

### Silicon/glass substrate polymer mold – Quick Mold

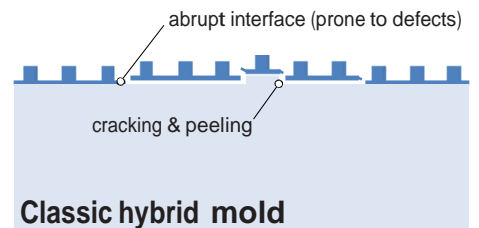
Our **Quick Mold** is similar to a traditional silicon mold, but does not require a pattern transfer process. This makes the Quick Mold much easier to fabricate.

Rather than etching a silicon or glass substrate to form nanopatterns, the EZImprinting Quick Mold uses a thin layer of polymer nanopatterns on top of the substrate. While our polymer mold has similar mechanical and refractive index properties to the traditional silicon mold, it requires only one step to fabricate. The EZImprinting quick mold has a lifetime of over 500 imprints.

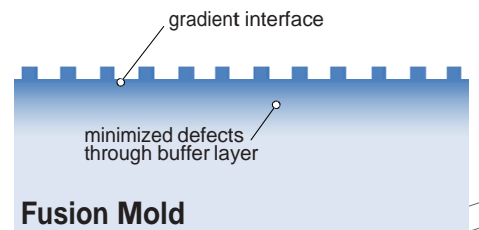
### Soft/flexible substrate hybrid mold – Fusion Mold

Our **Fusion Mold** combines a soft, flexible substrate with a rigid top layer. This provides both maximized production yield (>99%) and high resolution nanopatterns (sub-10 nm).

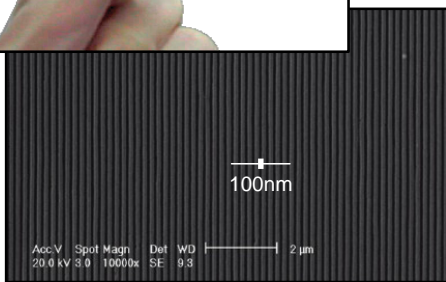
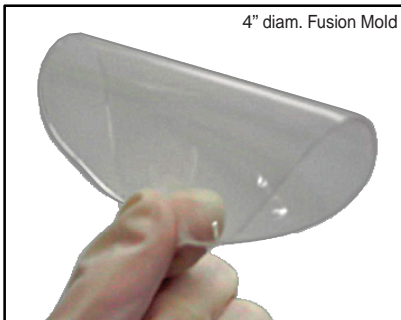
A unique buffer layer between the soft substrate and rigid top layer is formed by fusing the dissimilar materials together. By fusing in a gradient manner, the buffer layer effectively alleviates stress defects common in other hybrid molds. The result is enhanced, defect-free bonding of the two materials. The Fusion Mold has a lifetime comparable to the Quick Mold.



**Classic hybrid mold**

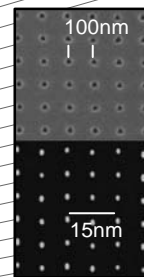
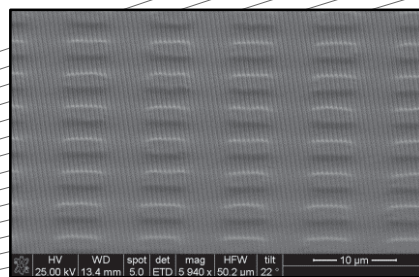


**Fusion Mold**



### EZImprinting

Gratings and nanodot imprint samples:



### Standard grating mold dimensions:

Grating ID:	Pitch (period)	Line width	Depth	Active area
G1394	578 nm	200 nm	104 nm	20 mm x 40 mm
G1304	340 nm	140 nm	108 nm	15 mm x 30 mm
G1317	568 nm	261 nm	78 nm	15 mm x 30 mm
G1322	580 nm	228 nm	73 nm	15 mm x 30 mm