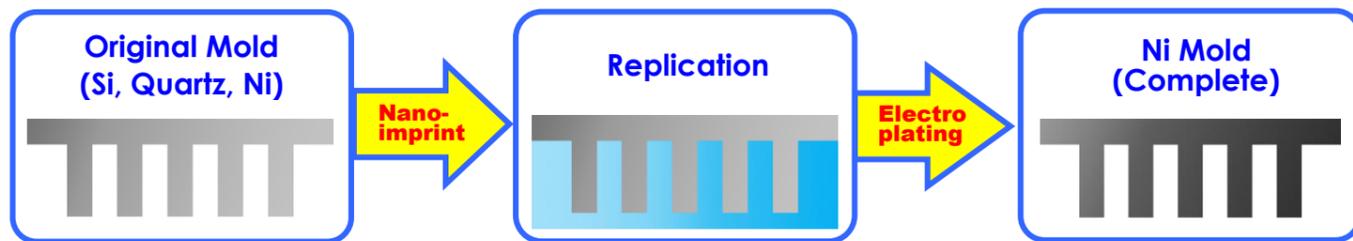


Mold Replication

Even a small scratch makes mold unusable.

We offer mold replication service applying nanoimprint technology. Available for fine and diverse patterns.

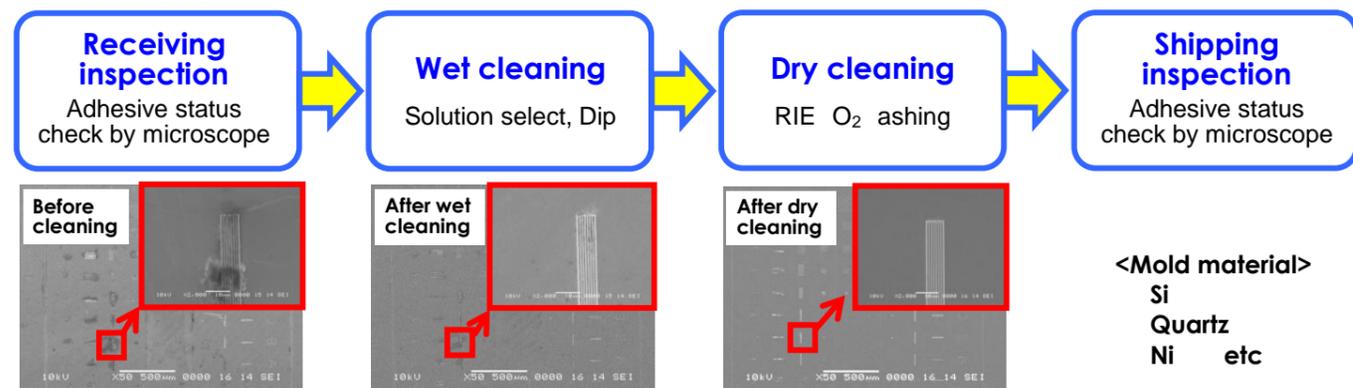


Mold Cleaning

Clean up used nanoimprint mold.

By choosing appropriate cleaning method for each contamination and imprint method (UV, thermal), we resolve defect in imprinting.

Process flow



<Mold material>
Si
Quartz
Ni etc

Technical Consulting & Engineering

By collaboration with IMRE (Institute of Material Research and Engineering) in Singapore, we offer technical consulting of nanoimprinting.

<p>Example (1) Pillar structure by cross-linked polyethylene</p> <ul style="list-style-type: none"> ■ Patter size : 250nm (Aspect ratio=1) ■ Substrate : Polyethylene-naphthalate, PEN 	<p>Example (2) Double side nano scale grating structure</p> <ul style="list-style-type: none"> ■ Patter size : 200nm ■ Substrate : PMMA, Si 	<p>Example (3) Double layer grating structure</p> <ul style="list-style-type: none"> ■ Substrate : Polystyrene, Si
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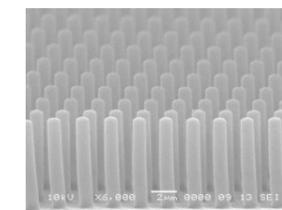
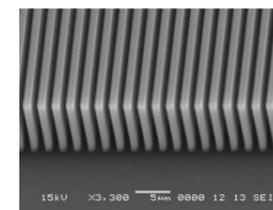
Nanoimprint Total Solution

Nanoimprint related services such as mold fabrication, imprint service and others applying semiconductor manufacturing technologies.

Foundry - from mold fabrication to imprinting -

Mold (Template)

Imprint Service

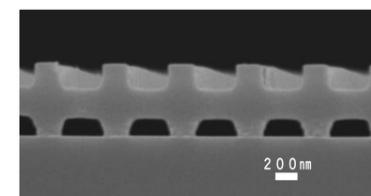
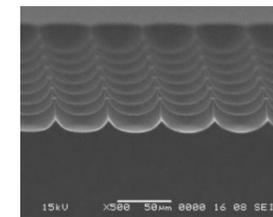


Diverse Solutions

Mold Replication

Mold Cleaning

Technical Consulting & Engineering



KII contact information :

Kyodo International Inc. Electronics Dept
TEL: +81-044-852-7575 FAX: +81-044-854-1979
E-MAIL: denshi@kyodo-inc.co.jp

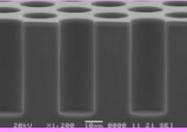


URL: <http://www.kyodo-inc.co.jp/>
2-10-9 Miyazaki, Miyamae-ku, Kawasaki-shi, Kanagawa-ken, 216-0033, Japan

Mold (Template)

Mold

We offer mold in various material such as Si, Quartz, Ni to meet your specification.

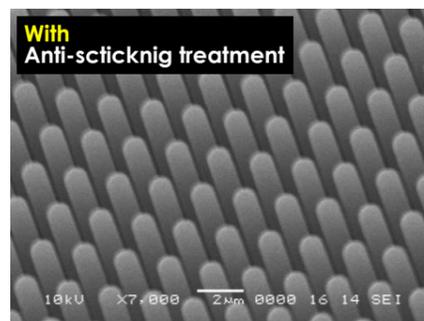
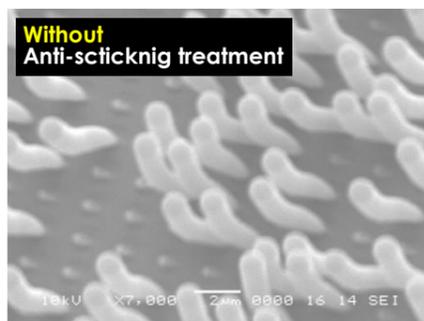
Type	Material & Characteristics
Si Mold 	Si The most superior material in process easiness and flexibility in structurization. It is possible to fabricate mold based on your specification from nm to μm order. Master mold made by Si can be used to fabricate Ni electroplated mold.
Ni Mold 	Ni Ni mold is manufactured using master mold made by Si or photo-resist. Superior in robustness compare to Si and Glass. It is relatively easy to reproduce daughter mold from mother mold.
Quartz Mold 	Quartz (Glass) Typical material for mold for UV nanoimprint. Structurization in horizontal is as same as Si but vertically it is inferior to Si. Its transparency is suitable for the use as material of microfluidics.
Resin Mold 	Polymer For UV imprint and soft lithography. This mold can be usable for imprint on winding substrate, flexible PCB and large object.
Roll to Roll Mold 	Ni A mold for R2R (Roll to Roll) imprint. It is suitable for imprinting in large area and high volume imprinting,

- * Service available for various structures and pattern size such as nm to μm scale.
- * For both of thermal and UV imprint.
- * "Trial mold" for initial evaluation is available also.

Anti-sticking treatment

Anti-sticking treatment on mold is available in order to improve degree of precision and yield.

Fine MoZt™



Imprint Service

Thermal imprint, UV imprint, Mold injection are available.

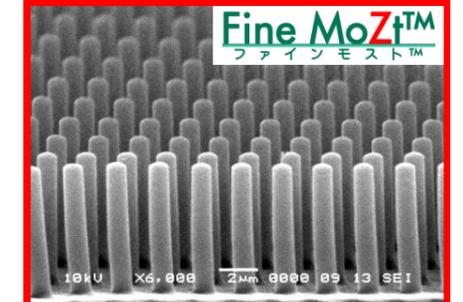
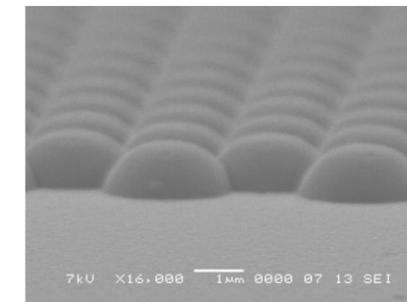
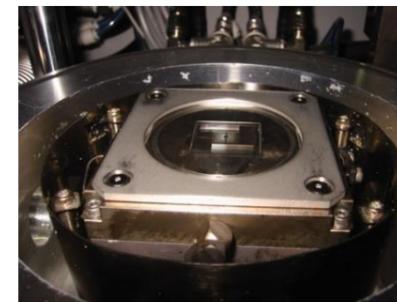
Thermal imprint

By imprinting thermoplastic resin, it enables micro structure with high aspect ratio in less time and cost. Applicable for various devices such as optical device, magnetic device etc.

Material : PMMA, COC, COP, PC, PET, etc.

Unique Technology

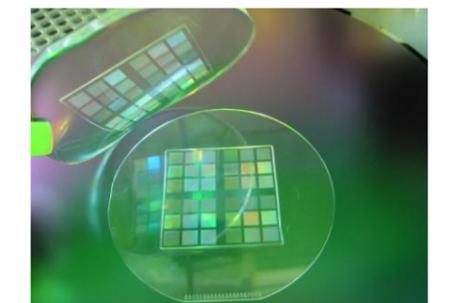
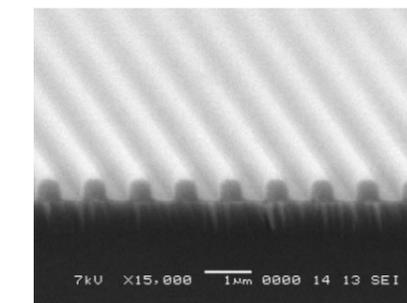
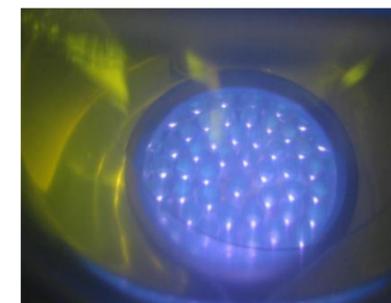
By combination with our original anti-sticking treatment (**Fine MoZt™**), we achieved imprint of pattern with aspect ratio 10($\phi 100\text{nm}$ Height 1000nm)!



UV imprint

Superior in transferability in large area and takt time. Expected to be substitute of semiconductor manufacturing technology.

Material : UV curable resin



Mold injection

Mold injection has an excellency in volume production ability so that it leads to cost reduction of products. This PP based resin has good transferability which realizes perfect pattern transfer of 0.3 μm to 100 μm of concavo-convex shape. Its superior transparency and thermostability are adequate for bio chip and optical device.

Material : PP based resin

