InnoStamp 40®

The Next Generation in MicroContact Printing

INNOPSYS

Proprietary technology

Magnetic PDMS technology for perfectly uniform contact

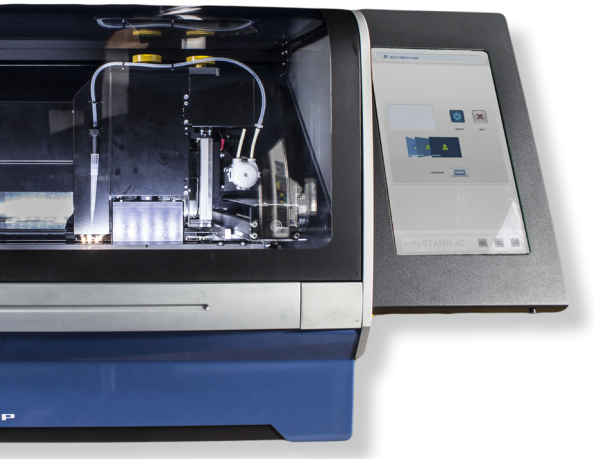
Nano/Micro Patterning

- Sub-micron resolution:
  Feature size as small as 140nm
- Customizable patterns in size and shape
- Proprietary Multiplexed Deposition:
  Single or multiple material deposition
- High Precision Printing

Easy Automation

From preliminary testing to small industrial series

- Reproducible and Uniform **Process**
- Shorter Development Time due to User-Friendly System
- High-precision Printing **by Magnetic Force**



MacroStamp for multiplexed solutions

Versatility

- Widespread applications:
  Nanotechnology, Physics, Biology, Electronics...
- Biocompatible Deposition
- Compatible with a wide range of inks and supports:
  Inks: *silane, thiols, nanoparticules, carbon nanotubes, DNA ...*
  Substrates: *glass slide, plastic, silicone wafer, ...*

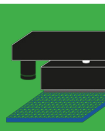
INNOSTAMP 40: A new take on automated nanopatterning

NEW!

1 Loading zone

- Option 1: Up to 4 rectangular stamps (1" x 3")
- Option 2: 1 rounded stamp (max. diameter 4")
- Attachment by magnetic force

2 Inking zone



- Compatible with 96-, 384-well microplates
- Temperature-controlled (from 0° to 50°C)
- Limited evaporation by regulation around dew poi
- Time and magnetic field controlled step

3 Alignmer

- Automatic Alignm
- Multidirectional:
- Precision: +/- 20

High Resol

- Precision +/- 5

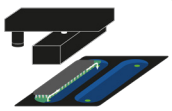
4 Drying zo

- Options: Blower
- Antipollution syst

5 Printing zone

- Compatible with various inks: *nanoobjects, che biomolecules, silane, thiols, carbon nanotubes...*
- Compatible with all types of substrates: *glas silicone wafer ...*
- 4 microscope slides or a 4"- wafer *(max. surf*
- Homogeneous printing
- Pressure-controlled from 0 to 120 kPa: *related to iron concentration in stamp*

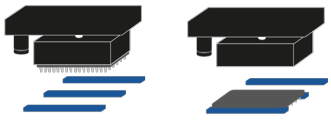
6 Cleaning zone



- Washing step with or without flux
- Acido-basic buffer or ethanol as a solvent

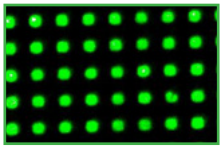
7 Unloading zone

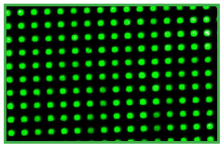
- Same as loading parameters

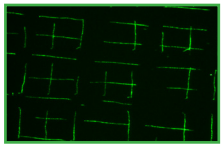


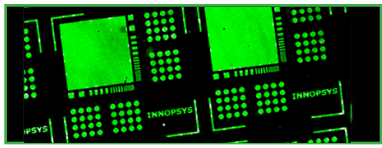
A new fully automated micro-contact printing solution

by flexible programming









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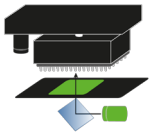
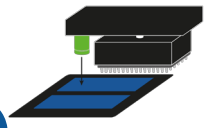


nt zone

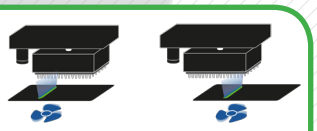
ment by 2 cameras
X-Y-Rotation
µm



ution Module
µm

User-friendly software
with tablet PC

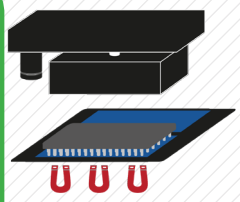
Specifically designed for complete process control.



one

/ Nitrogen gas / External source
tem

Filtration Module
- Oil and particle filters

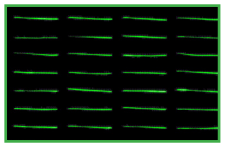


emicals,

s, plastic,

ace size: 4" x 4")

Module for Molding
- Substrate heating: up to 100°C
- Liquid pipetting: from 30µL to 1mL



INNOPSYS

Empowering Applications

Nanotechnology

InnoStamp40 is a powerful tool to manipulate nano-objects such as: nano-particles, nanowire, carbon nanotube… Moreover, it could be integrated into a complete clean room process for MEMS or NEMS.

Electronics

Microcontact printing is increasingly used as a patterning step to create electronic devices on flexible substrates such as: flash memory, field emission devices, transistors, ... Innostamp40 allows users to decrease the development time of electronic devices and to facilitate the transfer to industrial series.

Physics

At micro/nano scale, physical properties of structures are studied. InnoStamp40 can be used to fabricate these micro/nano structures (microlenses, SERS effect, …).

Chemistry

Microcontact printing can be used to pattern chemical molecules or can be integrated into a synthesis process. In this case, InnoStamp40 can allow the user to generate catalysis, bifunctional Janus beads, "click" chemistry, ...

Biopatterning

InnoStamp40 can be used to fabricate DNA or protein microarrays. Thanks to its macrostamp, it can deposit between 64 to 250 different biomolecules in one step.

Cell Biology

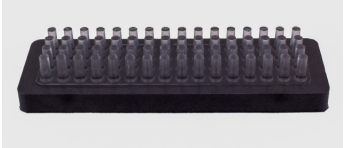
With micro contact printing, all patterns are feasible up to 100nm. In order to study cell development, an increasing number of biologists use this technology. Through deposition of growth factors in nano-patterns, they control cellular adhesion allowing studies of migration, differentiation, polarization in cells like neurons or bacteria....

Magnetic field assisted printing: A huge advance on a nano-scale

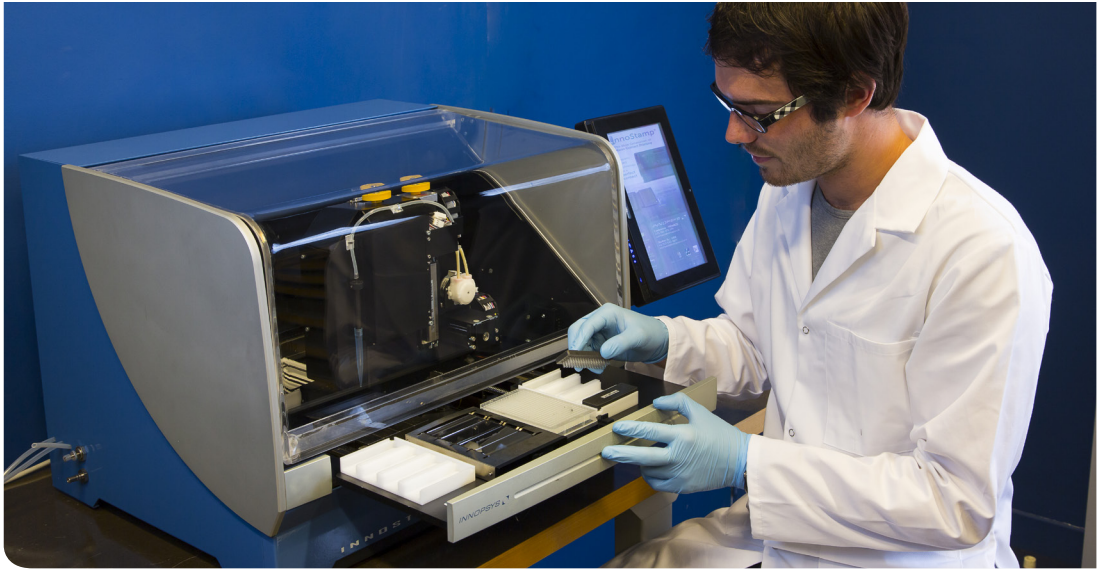
Requirement of Magnetic Stamps

- A Polydimethylsiloxane (PDMS) stamp with upper layer of iron powder
- Low-cost, easy-to-use material, simple preparation protocol
- Highly adjustable stamp for different patterns and sizes
- Pattern resolution down to nanoscale
- Macrostamps for multiplexing

64 patterns in one step deposition
Compatible with 364 well microplates



InnoStamp® 40



Technical specifications

DRAWER CONFIGURATION	Automated drawer which permits easy exchange of materials A user-selected support configuration: - Support for 4 microscope slides - Support for wafer chips with 1 circular stamp (maximum diameter of 96mm)
COMPATIBLE STAMP	User-selected support configuration: - Rectangular/square (min : 10 x10 mm² ; max : 25 x 75 mm²); Capacity: up to 4 of max size - Circular Stamps (max diameter of 4"); Capacity: up to 1 of max size
INKING SUPPORT	Relative to stamps MacroStamp®: Compatible with 384 well plates
TEMPERATURE CONTROLLED INKS	Adjustable from 0°C to 50°C (maximum ambiant temperature of 20°C) Precision of temperature sensor: +/- 0.1°C ; Stability +/-0.5°C for 8h Option to set temperature to dew point
COMPATIBLE INKS*	Nano-objects, chemical substances, biomolecules (proteins, DNA, and others)
DRYING	Options: Blower / Nitrogen gas / external source
PRINTING SUPPORT*	Depends on the support configuration chosen by the client: for 4 microscope slides / for 4 wafer chips Glass, plastic, silicon wafer, and others
PRINTING PARAMETERS	Format, number of substrates and stamping coordinates defined via user interface
ALIGNMENT	Cameras Resolution: 1.6 µm ; X-Y-Rotation ; (+/- 20 µm) Optional: High Resolution alignement up to +/- 5µm
PATTERN SIZE	*Depends on design of stamp and the nature of the molecules being deposited.* Classic micro-contact printing: from 230nm to the size of the stamp Molding: from 230nm to the size of the stamp
AMPLITUDE OF CONTACT FORCE	From 0 to 120 kPa depending on the selected magnetic module Force dependent on position of magnets and the iron powder concentration of the stamp
PRINTING DURATION	Adjustable from 1 to 3600s ; steps of 1s
PRINTING PRECISION	X : +/- 3µm, Y : +/-3µm, angular: +/-0.5°
OPTIONAL MOLDING	Pipetting tool: From 30µL to 1mL (steps of 30µL and precision of +/-2µL) Support heating: Ambient temperature to 100°C
CLEANING	Washing step with or without a solution flow

* Non exhaustive list, please contact us for more information

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Specifications subject to change without notice . Contact us for the most recent specifications

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