



morphotonics

EPIC Online Technology Meeting
on
Micro-optics Manufacturing

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April 22, 2020

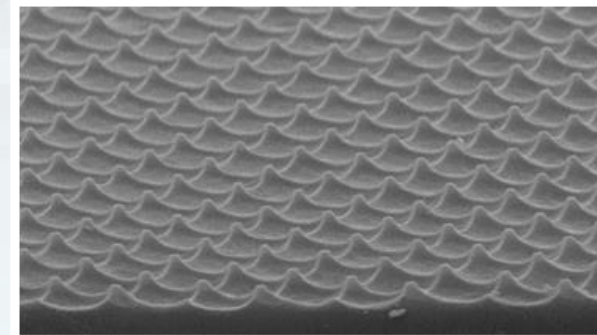




Morphotonics | About Us



- **Business** – OEM supplier of equipment & consumables for micro- and nano imprinting of large-area substrates and devices.
- **Background** –
 - Founded in 2014. 25 Employees. HQ in Veldhoven, Netherlands – world-class Photonics R&D region.
 - Primary focus in Displays, Lighting, and Solar with many emerging applications
 - Independent IP: Multiple patents granted & pending
- **Proven Technology** –
 - 10+ years experience in mastering & replication technology
 - 5+ years dedicated R&D on large area nanoimprinting technology
 - 24/7 operational, fully integrated Roll-to-Plate (R2P™) nanoimprinting line at display customer in Asia. Strong & diversified order pipeline.





Morphotonics | Products

Equipment



Flexible Stamps



UV Imprint Materials



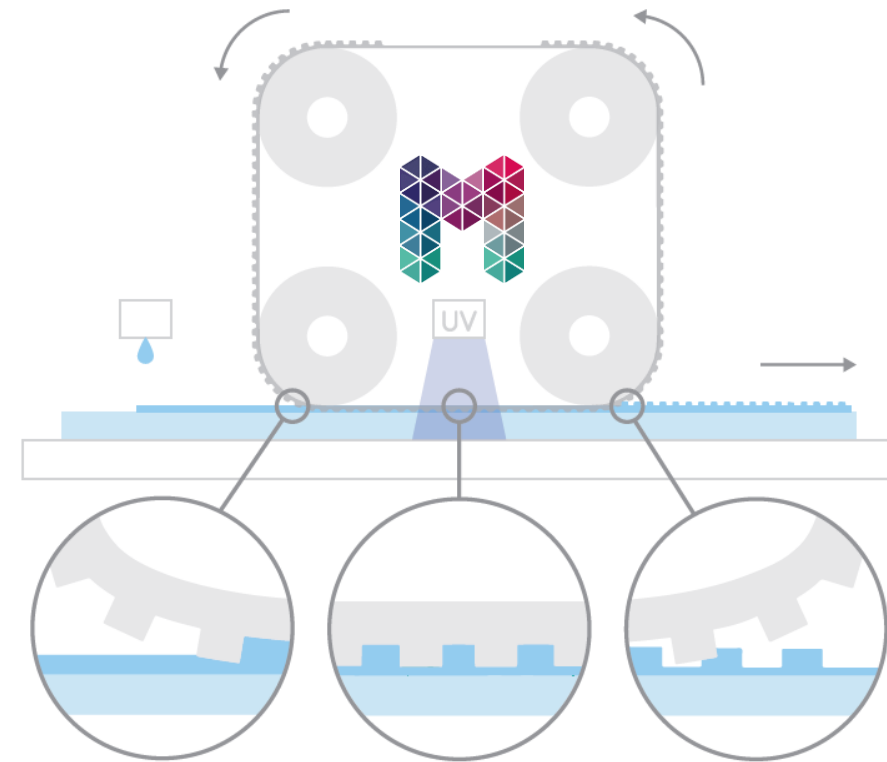
Competence Centre





Morphotonics' focus is on Extremely Large Area imprinting (i.e. 1.1m x1.3m, or GEN5 size)
Large area imprinting enables mass volume production, having multiple smaller products tiled on 1 flex stamp

- Imprint textures on discrete substrates
- Re-usable flexible stamp
- Transparent or opaque substrates
- Structures from 500 um down to 50 nm
- Imprint speed up to 10m/min
- Use of robust UV curable materials suitable for high-temperature downstream processes or outdoor conditions





R2P™ Technology | Positioning

R2P™ is a valuable addition to the NIL ecosystem

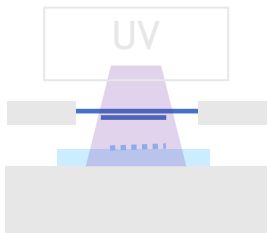
R2P™ is not out to replace existing technologies, is rather complementary to R2R & wafer-based NIL approaches

Low throughput
High-cost
Small-size substrate
High position accuracy

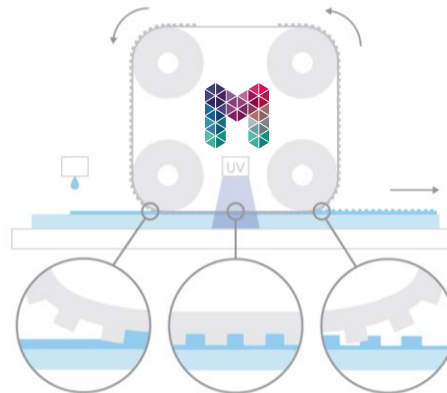
For discrete large area substrates
Meeting tight product specs
Complementary for both worlds

High throughput
Low-cost
Large-size substrate
Low position accuracy

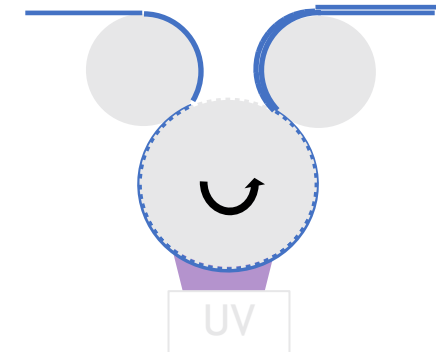
Wafer UV-NIL



Roll2Plate



Roll2Roll





R2P™ Technology | Micro-Optics Applications

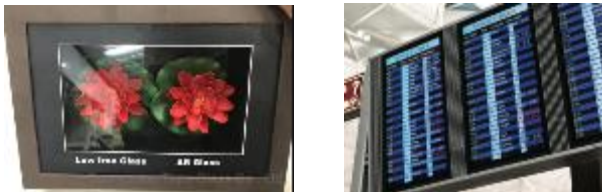
● WGPs & BLUs for thinner and more efficient LCDs



● DOE & MLAs for Glass Free 2D/3D dual mode displays



● Anti-Reflection layer using Moth eye structure for Outdoor/Digital Signage



● Custom Backlight for Switchable Privacy Filters



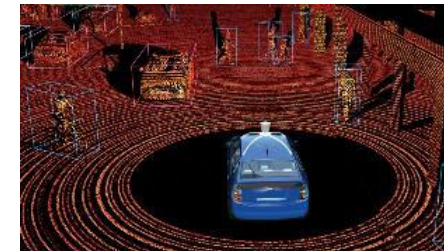
● Waveguides for AR glasses



● MicroLED Displays



● Auto HUDs/Displays & LIDAR Diffusers



● E-Paper Displays

