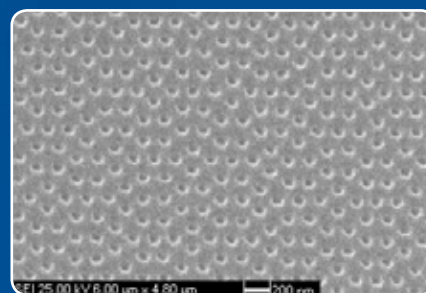


Sindre[®] 60 NIL for Semi-Automated Production



Imprinted grating pattern with 25nm line width and 120nm period.



Imprint with 12-fold quasi crystal pattern.
Pattern design from Mesophotonics.

The Sindre[®] 60 Nano Imprint Lithography (NIL) system is designed for semi-automated production within application areas such as opto electronics, patterned media, MEMS/NEMS and lab-on-chip.

The system has manual substrate handling and fully automated imprint process and demolding, allowing cost efficient replication of patterns in the micro- and nanometer range.

Sindre[®] 60 is designed for full area imprint, using both Soft Press[®] and Simultaneous Thermal and UV (STU[®]) technology. This ensures minimum residual layer thickness variations across the entire imprint area, enabling accurate pattern transfer with high yield.

Key features:

- Full area imprint
- Soft Press[®] technology
- Simultaneous thermal and UV (STU[®])
- Semi-automated operation
- Water cooling
- Automated demolding

Benefits:

- Cost efficiency
- High yield
- Sub-30nm features
- Sub-20nm residual layer thickness
- Up to 12 imprint cycles per hour

Sindre® 60

Throughput	12 imprint cycles/hour
Wafer size	Up to 6 inches
Mini environment	Class 10
Foot print	1 m ²
Substrate handling system	Semi-automated
Thermal imprint	Standard
Computer controlled user interface	Standard
UV Imprint	Standard
Water cooling	Standard
Automated demolding system	Standard
Alignment	Option

Obducat NIL technologies

All NIL systems from Obducat are designed for full area imprint, using the patented Soft Press® technology. Obducat's NIL systems enables cost efficient pattern replication in the micro- and nanometer range and are suitable for imprinting on a wide range of polymers and substrate materials.

Soft Press®

With Obducat Soft Press® technology pressure is applied to the stamp and substrate using compressed air, ensuring pressure uniformity over the entire imprint area. This allows stamp and substrate to conform to each other, eliminating negative effects from thickness variations, bow or waviness in stamp or substrate. Soft Press® enables thin and uniform residual layer over large areas, which is critical for high-resolution printing and pattern transfer fidelity.

STU® - Simultaneous Thermal and UV

Obducat's proprietary STU® technology enables simultaneously combined thermal and UV NIL, allowing the complete imprint sequence into UV-curable thermoplastic pre-polymers to be performed at a constant temperature. By using the unique STU® technology, problems related to thermal expansion mismatch between stamp and substrate are avoided. In the STU® process spin-coatable polymers are used, allowing control of the initial polymer thickness and homogeneity, essential for achieving thin and uniform residual layers.

IPS® - Intermediate Polymer Stamp

The patented IPS® technology enables contamination control and increases the stamp lifetime through a two-step process where the contact between the master stamp and the hard substrate is avoided. Instead the master stamp is replicated into a soft intermediate polymer stamp that transfers the structures into the target substrate. The IPS® technology therefore greatly impact the overall costs associated with NIL, making our solution the most cost efficient on the market.