EITRE® 3 / 6 / 8

NIL FOR RESEARCH & DEVELOPMENT

HIGHLIGHTS

- Versatile and flexible semi-automatic tool
- Thin and uniform residual layer
- Capable of performing both UV- and Thermal NIL processes
- Highly customizable through tool options

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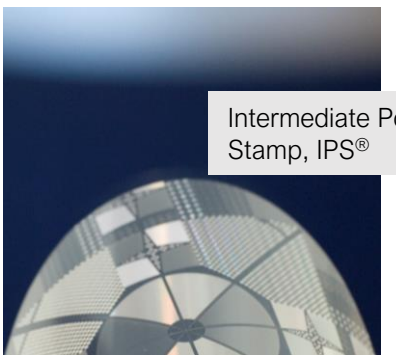
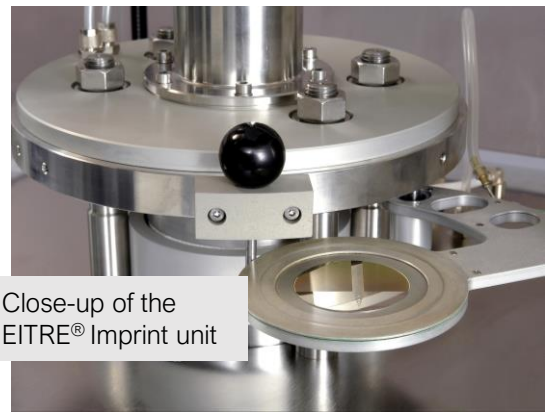
GENERAL INFORMATION

Key Features

- The EITRE® Nano Imprint Lithography (NIL) systems offer a semi-automated and affordable lithography solution, allowing pattern replication in the micro- and nanometer range.
- The EITRE® systems are particularly versatile because of the multiple imprint process capabilities and the wide range of configuration possibilities.
- An easy-to-use semi-automatic solution with a user-friendly interface.
- The embedded SoftPress® technology ensures excellent residual layer thickness control across the entire imprint area, enabling an accurate pattern transfer and easy down stream process development.
- The flexibility of the systems allows for a variety of imprint processes to be used, such as hot embossing, thermal NIL, UV NIL and Obducat's unique Simultaneous Thermal and UV (STU®) process.
- The EITRE® systems are suitable for research and development within application areas such as solid-state lighting, micro optical and photonic components, bio-medical and life science devices, lab-on-chip, MEMS/NEMS and semiconductors.
- Full area imprint
- Designed according to European safety regulations and CE Mark



Intermediate Polymer Stamp, IPS®



Close-up of the EITRE® Imprint unit

Obducat's NIL Process Technologies

IPS® - Intermediate Polymer Stamp

The patented IPS® technology is based on making a replication of the master stamp into a soft Intermediate Polymer Stamp (IPS®). The IPS ® is then used in a second imprint step to transfer the structures onto the target substrate.
The IPS® enables contamination control, increases the master stamp lifetime and makes the imprint process less sensitive to substrate contaminations and surface roughness.

SoftPress®

With Obducat's patented SoftPress® technology, the imprint pressure is applied using compressed gas, ensuring pressure uniformity over the entire imprint area. This allows the stamp or IPS® to conform to the substrate, eliminating negative effects from thickness variations, bow or waviness. SoftPress® enables thin and uniform residual layer across the substrate, which is critical for enabling high-resolution imprinting and pattern transfer fidelity.

STU® - Simultaneous Thermal and UV

The patented STU® technology combines, in one imprint sequence, the simultaneous use of thermal- and UV based imprint processes. The STU® process allows for increased polymer flow rate giving a shorter process time as well as enabling improved material compatibility and thereby a wider selection of workable imprint materials.

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TECHNICAL DATA

TOOL CONFIGURATIONS

The standard configuration of the EITRE® Systems includes Imprint Module based on the proprietary SoftPress® technlogy, Computer Controlled User Interface, Manual Loading System and SoftPress® Technology License for Non-Commercial R&D.

	EITRE® 3	EITRE® 6	EITRE® 8
Substrate Size	≤ 78 mm Ø	≤ 152 mm Ø	≤ 200 mm square
Imprint Pressure (minimum)	6-8 bar (depending inlet pressure on CA)	6 - 8 bar (depending inlet pressure on CA)	6 - 8 bar (depending inlet pressure on CA)
Imprint Pressure (maximum)	70 bar	80 bar	≤ 50 bar
Imprint Temperature (minimum)	Ambient temperature	Ambient temperature	Ambient temperature
Imprint Temperature (maximum)	250°C (200°C with UV Module)	250°C (200°C with UV Module)	250°C (200°C with UV Module)
Imprint Temperature Setting Accuracy	± 2 deg	± 2 deg	± 2 deg

TOOL OPTIONS

	EITRE® 3	EITRE® 6	EITRE® 8
UV imprint	Option	Option	Option
STU® technology license for R&D	Option	Option	Option
IPS® technology license for R&D	Option	Option	Option
Water cooling	Option	Option	Standard
Optical alignment	N/A	Option	Option
Low pressure Module	Option	Option	Option

FACILITY REQUIREMENTS

	EITRE® 3	EITRE® 6	EITRE® 8
Clean-room compability	Class 100	Class 100	Class 100
Room Temperature	18-32°C	18-32°C	18-32°C
Relatively Humidity	40 - 65 %	40 - 65 %	40 - 65 %
Power	220-240 VAC, 1 phase, grounded, pre-fused to 16A, 50/60 Hz, 3 kVA	400 VAC, 3 phase, grounded, pre-fused to 32A, 50/60 Hz, 16 kVA	400 VAC, 3 phase, grounded, pre-fused to 32A, 50/60 Hz, 16 kVA
Compressed Air	6 - 8 bar, 30 l / min	6 - 8 bar, 40 l / min	6 - 8 bar, 40 l / min
Exhaust Flow	1000 - 2000 l / min	1500 - 3000 l / min	1500 - 3000 l / min

SYSTEM DIMENSIONS

	EITRE® 3	EITRE® 6	EITRE® 8
Dimensions (L x W x H)	80 x 60 x 180 cm*	100 x 75 x 180 cm*	100 x 75 x 180 cm*
Weight	Approx. 250 kg*	Approx. 1000 kg*	Approx. 1000 kg*

*not including auxiliary equipment

CONTACT US

www.obducat.com

Obducat Technologies AB
Scheelevägen 2
22363 Lund
Sweden
Phone: +46 46 10 16 00

Obducat Europe GmbH
Robert-Gerwig-Str. 9
78315 Radolfzell
Germany
Phone: +49 7732 97 898-0
Fax: +49 7732 97 898-99

Obducat USA Inc.
851 Burlway Rd, #605
Burlingame, Ca 94010
USA
Phone: +1 510 871 0041
Phone: +1 619 565 4844

Visit our website for local sales offices
www.obducat.com