

# EITRE<sup>®</sup> Large Substrates

NIL FOR SUBSTRATES UP TO 500x500mm



## HIGHLIGHTS

- Versatile semi-automatic NIL tool
- Superior residual layer uniformity across the substrate area
- High accuracy pattern replication for patterns down to sub-50 nm
- Integrated in-line CVD anti-stick of IPS

# EITRE<sup>®</sup> Large Substrates

## GENERAL INFORMATION

### Key Features

- The EITRE<sup>®</sup> Large Substrates NIL tool is a semi-automated lithography tool, enabling high accuracy and repeatable pattern replication down to sub 50 nm resolution.
- The EITRE<sup>®</sup> tool is particularly versatile because of the flexibility inherent in the system allowing different imprint processes to be used. The imprint processes include hot embossing, thermal NIL, UV NIL and Obducat's patented Simultaneous Thermal and UV (STU<sup>®</sup>) process. The Eitre<sup>®</sup> tools can perform a range of imprint processes which enables the use of a wide range of imprint materials.
- The embedded SoftPress<sup>®</sup> technology ensures a uniform pattern replication over the whole substrate area in process step with excellent imprint quality. It guarantees the thinnest and most uniform residual layer over the entire substrate, enabling precise and simple downstream processing.
- The EITRE<sup>®</sup> tool is suitable for use in R&D as well as pilot production within application areas such as Micro- and Mini LED displays, LCD displays, optical devices, medical devices, security printing, solar cells, functional surfaces and others.
- In-line CVD anti-stick of IPS enabling higher yield and reducing material compatibility issues enabling a wider process window.
- Designed according to European safety regulations and CE Mark.



### Obducat's NIL Process Technologies

#### IPS<sup>®</sup> - Intermediate Polymer Stamp

The patented IPS<sup>®</sup> technology is based on making a replication of the master stamp into a soft Intermediate Polymer Stamp (IPS<sup>®</sup>). The IPS<sup>®</sup> is then used in a second imprint step to transfer the structures onto the target substrate.

The IPS<sup>®</sup> enables contamination control, increases the master stamp lifetime and makes the imprint process less sensitive to substrate contaminations and surface roughness.

#### SoftPress<sup>®</sup>

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

#### STU<sup>®</sup> - Simultaneous Thermal and UV

The patented STU<sup>®</sup> technology combines, in one imprint sequence, the simultaneous use of thermal- and UV based imprint processes. The STU<sup>®</sup> 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.

#### Automated IPS<sup>®</sup> application and demolding

The patented automated demolding function developed by Obducat for use with the patented IPS<sup>®</sup> and SoftPress<sup>®</sup> technologies makes the application of the IPS<sup>®</sup> material accurate and repeatable, ensuring that the pattern fidelity is maintained. The automated demolding function also protects the stamp from any manual handling during the imprint process.

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## TECHNICAL DATA

### TOOL CONFIGURATIONS

The standard configuration of the EITRE<sup>®</sup> System includes imprint module based on the proprietary SoftPress<sup>®</sup> technology, Automatic foil handling for IPS<sup>®</sup> material, Computer Controlled User Interface, Manual Stamp and Substrate Loading, SoftPress<sup>®</sup> Technology License for Non-Commercial R&D.

The standard imprint configuration is configured to perform both thermal and UV based imprint processes allowing the use of the Obducat proprietary Simultaneous Thermal and UV (STU<sup>®</sup>) technology.

The configuration with thermal imprint, UV imprint and STU<sup>®</sup> imprint enables a high flexibility of different imprint methods and materials. The UV-module is based on a high-performance water-cooled LED light source ensuring a long lifetime and low maintenance.

<b>Substrate size</b>	Up to 500 mm x 500 mm
<b>Thermal imprint and UV imprint</b>	Both included
<b>Imprint Pressure (minimum)</b>	1 bar
<b>Imprint Pressure (maximum)</b>	20 bar
<b>Imprint Temperature (minimum)</b>	Ambient Temperature
<b>Imprint Temperature (maximum)</b>	160°C
<b>Imprint Temperature Setting Accuracy</b>	± 3°C
<b>UV Module Specification</b>	Water cooled LED
UV WaveLengths	365nm
UV Light Power at Sample	>80mW/cm <sup>2</sup> – Line Scan type
<b>Water cooling</b>	Standard
<b>IPS<sup>®</sup> application and demolding</b>	Automated
<b>Mini environment</b>	Class 10 if installed in class 100 room

### TOOL OPTIONS

**STU<sup>®</sup> technology license**



# EITRE<sup>®</sup> Large Substrates

## TECHNICAL DATA

### FACILITY REQUIREMENTS

<b>Clean-room compability</b>	Class 100
<b>Room Temperature</b>	18-32°C
<b>Relatively Humidity</b>	40 - 65 %
<b>Power</b>	Ph3 – 400 VAC/N/PE, 50 Hz 63 Amp, CEE Connector
<b>Vacuum</b>	-0,8 bar
<b>Compressed Air (CDA)</b>	8 bar
<b>High Pressure Nitrogen or Air</b>	25 bar
<b>Exhaust Flow</b>	>3000 l / min

### SYSTEM DIMENSIONS

<b>Dimensions (L x W x H)</b>	2750 cm x 1560 cm x 2615 cm
<b>Weight</b>	Approx. 2400 kg



# CONTACT US

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