



EVG[®]770 NT

Step-and-Repeat Nanoimprint Lithography System



Introduction

Step-and-Repeat Nanoimprint Lithography for Efficient Master Fabrication

The EVG770 NT is a versatile platform for step-and-repeat (S&R) nanoimprint lithography for efficient master fabrication or direct patterning of complex structures on substrates. This approach allows uniform replication of templates from small dies up to 30 cm². The S&R process allows to replicate those dies multiple times over large areas up to Gen2 panel-size substrates. In combination with diamond turning or direct writing methods, S&R imprinting is frequently used to efficiently fabricate masters required for wafer-level optics manufacturing or EVG's SmartNIL process. Thus, it is often a crucial prerequisite for high volume manufacturing of augmented reality waveguides, optical sensors, diffractive optics, metasurfaces or biomedical devices.

Key features of the EVG770 NT include precise alignment capabilities, full process control and the flexibility to address process requirements of a wide variety of structures and materials.

Features

- High-quality master fabrication of microlenses for wafer-level optics down to nanostructures for SmartNIL[®]
- Efficient scaling to large substrate sizes up to panel size
- Simple implementation of different types of masters
- Variable resist dispense modes
- Live image during dispensing, imprinting and demolding
- In-situ force control for imprinting and demolding
- Optical distance control and live gap measurement
- Optional in-line metrology
- Optional stamp buffer and automatic exchange
- Optional automated cassette-to-cassette handling

Technical Data

Available Substrate Size	80 mm, 4", 6", 8", 12", Gen2 (370 mm x 470 mm)
Die-to-Die Positioning	< +/- 1 µm
Live Alignment	< +/- 250 nm
Max. Template Size	80 mm x 80 mm
Active Imprint Area	30 cm ²
LED Exposure Optics Wavelength	365 nm
Exposure Optics Intensity	> 300 mW/cm ²
Dispense Viscosity Range	100-10000 cp
Dispense System Material Compatibility	IPA, PGMEA, MEK, Acetone

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