microMIRA™

High Throughput Laser Lift-Off (LLO) System

3D-Micromac's brand-new laser LLO system provides highly uniform, force-free lift-off of flexible layers on wafers and large surface areas (up to GEN 6) and at high processing speeds. The system is built on a highly customizable platform that can incorporate different laser sources, wavelengths and beam paths to meet each customer's unique requirements.

The laser system can be used for a variety of applications, such as device lift-off from glass and sapphire substrates in semiconductor manufacturing as well as OLED and microLED display manufacturing. Additional applications include laser annealing and crystallization for surface modification.

microMIRA™ offers:

- Force-free and extremely selective laser processing
- No damage due to thermo-mechanical effects
- Low production costs
- Elimination of costly and polluting wet chemical processes
- Integration of adjacent manufacturing steps for greater fab productivity

3D MICROMAC

microMIRA™ - System Configuration
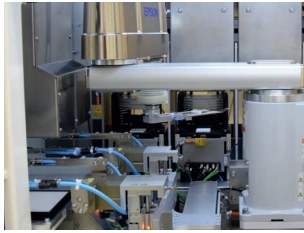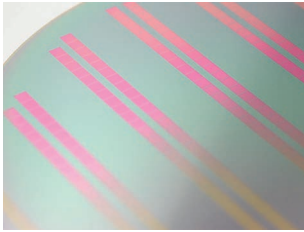
microMIRA wafer

Suitible for:

- LED
- Vertical LED
- Micro LED
- OLED

Configuration packages:

microMIRA wafer

- LLO of Si or Sapphire wafers
- Auxiliary processes available

microMIRA panel

- LLO of OLED panels or other large substrates
- Annealing functionality on request

Options:

- Process modules for spin coating
- Debonding module
- Quality inspection
- Automatic handling for panels and wafers
- Cleaning module
- Other auxiliary modules available on request

Substrate size	• Wafer up to 8" (200 mm) • Panel up to GEN 6 (1500 mm x 1800 mm)
Laser source	• Excimer laser source • UV ps laser
Beam delivery unit	• Line beam up to 750 mm • Square beam system
Positioning system	• High precision, direct driven X, Y & Z (with optional theta-stage)
Alignment	• Manual, semi-automated or fully-automated work piece alignment with X, Y system and optical measurement system • Automatic Z positioning and surface mapping
Software microMMI™	• Control and supervise of all hardware components and machining parameters • Different user levels (administrator, supervisor, operator) • Data input file types: DXF, CSV, Gerber, CLI, others on request
Safety	• Laser class 1 housing with integrated control panel • Certified laser window or overview camera (webcam) • Active exhaust system available as option

Dimensions	• microMIRA panel:
	  • 10,4 x 7,7 m² including surrounding service area
	  • 8,8 x 7,7 m² including basic service area
	• microMIRA wafer:
	  • 6 x 3 m²

Changes in accordance to technical progress are reserved.

Rev. 2018