

microFLEX™

Roll-to-Roll System for Processing of Flexible Electronic Devices

The modular microFLEX™ manufacturing system combines high-precision laser processes with coating and printing technologies for production of flexible electronic devices. In addition, different drying, annealing and pre-treatment steps as well as the encapsulation of the finished products can be done with the system.

Machining in a continuous roll-to-roll process and laser processing on-the-fly enables highest throughput and cost efficiency for the complete production process.

microFLEX™ offers:

- On-the-fly laser processing
- Cleaning and preparation
- Coating and printing
- Drying and annealing
- Packaging
- Manufacturing Execution System microMES



microFLEX™ System Configuration



3D-Micromac's microFLEX™ is the all-in-one solution for combined laser and coating processes. The system is suitable for industrial production, product development and applied research. The efficient machine design ensures:

Top quality products

- Process monitoring by MES
- Know-how in high precision laser micromaching for more than 10 years
- Processing under clean room conditions

Cost advantages

- Long-term security of investment
- Reasonable cost of ownership
- Easy to upgrade

Sustainable processing

- No chemical etching needed

High throughput and efficiency

- On-the-fly processing
- High machine uptime

Optimal usability

- Control and supervise all hardware components and machining parameters by software microMMI
- Intuitive user interface

Highest flexibility

- Easy product layout modification

Materials	<ul style="list-style-type: none"> • PET, paper, metal
Material thickness	<ul style="list-style-type: none"> • PET ≥ 0.025 mm; paper ≥ 0.1mm, metals (thickness depends on the material)
Modul standard	<ul style="list-style-type: none"> • 1400/1700 mm, others on request
External roll diameter	<ul style="list-style-type: none"> • Max. 500 mm @ 300 mm web width
Active web width	<ul style="list-style-type: none"> • 300/600¹/1200¹
Web speed	<ul style="list-style-type: none"> • Typical 0.1 - 50 m/min
Web tensile stress	<ul style="list-style-type: none"> • Typical 20 - 500 N
Edge guide	<ul style="list-style-type: none"> • ± 0.1 mm
Cleanroom class process area	<ul style="list-style-type: none"> • ISO 5 (HEPA - FFU)
Web cleaning method	<ul style="list-style-type: none"> • Contactless/contacted
Possible laser sources	<ul style="list-style-type: none"> • Available laser types: ps, ns, fs • Wavelength range: 193 nm - 10.6 μm • Pulse lengths: < 250 fs
Print technologies	<ul style="list-style-type: none"> • Rotary screen printing 1400 - 100000 mP*s • Slot-die coating 5 - 500 mPa*s • Inkjet printing 5 - 20 mPa*s

¹Both sides supported

Changes in accordance to technical progress are reserved.