Excimer Laser System

UVtransfer

Production Systems for microLED Mass Transfer

The UVtransfer system for microLED LIFT.

The systems from the UVtransfer product family are the solution to push microLED display manufacturing to an industrial level.

FEATURES

- Fully automated system with fab integration to provide a complete solution to the customer
- High resolution optics combined with precision mechanics to transfer smallest LEDs down to 5x5 μm^2
- 28x1 mm^2 field size, 300 Hz rep rate and 300mm/s stage speed for highest throughput
- Double receiver stage for high system for outstanding system efficiency
- Triple donor stage for RGB generation in one process step and to minimize loading times and to optimize the die-to-die placing accuracy or single tripod donor stage to compensate wafer bow
- Outstanding SW features like digital twin and path planning for process simulation and optimization

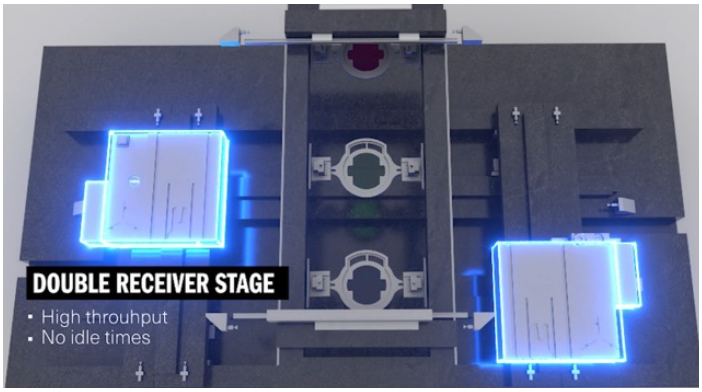
APPLICATIONS

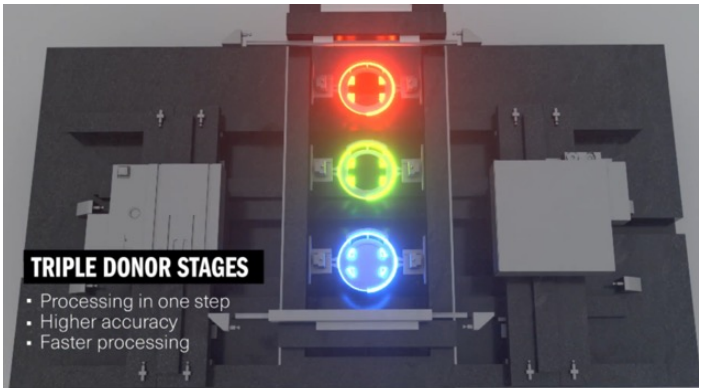
- MicroLED mass transfer (pitch conversion and RGB pixel generation) in the display production
  - From an EpiWafer to a temporary carrier or backplane
  - From a carrier to a second carrier or backplane

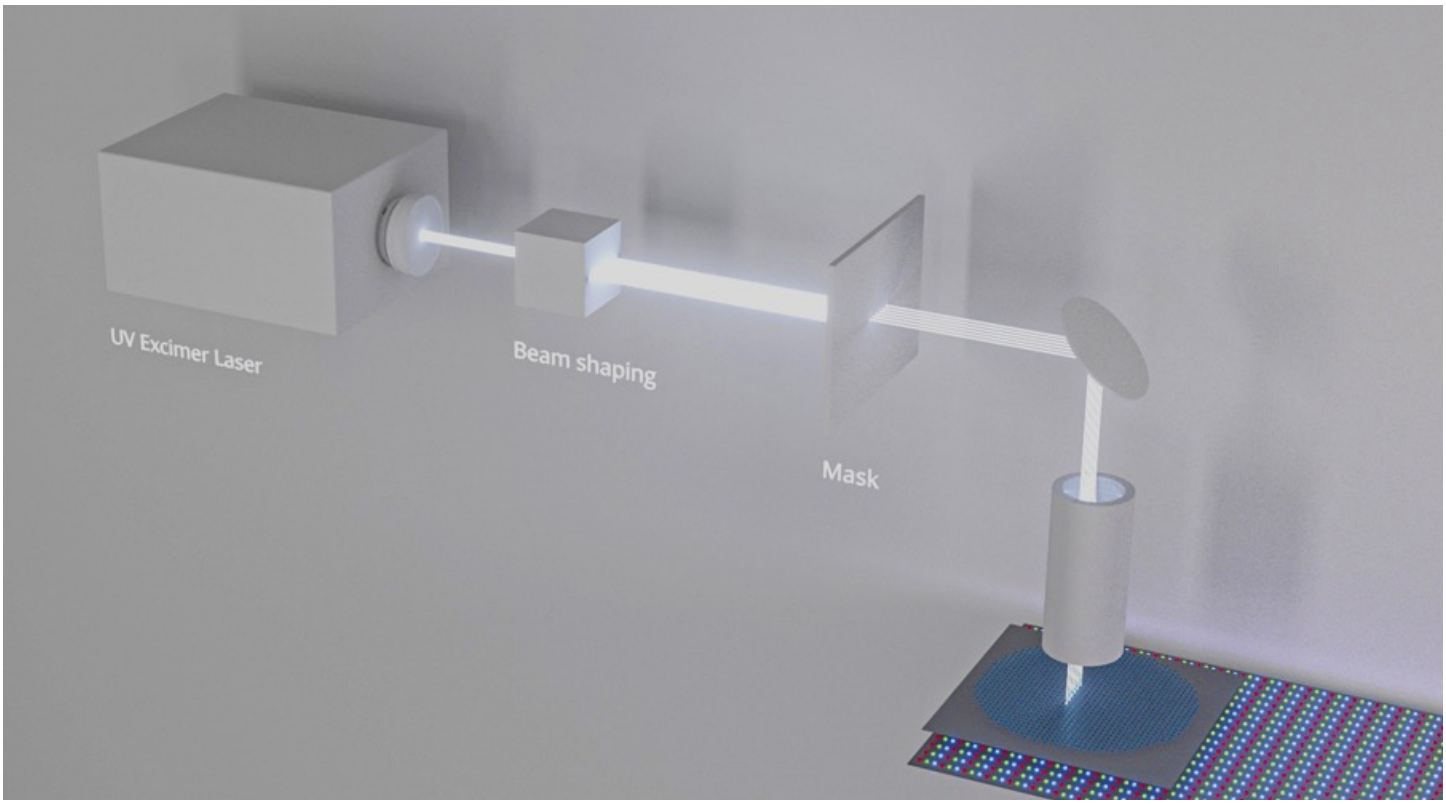
COHERENT

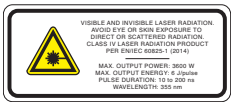
Specifications	UVtransfer
LIFT and Repair System	Fully automated system for 24/7 usage in an industrial environment
Dimensions (W x L x H)	Approx. 3000 x 8000 x 3300 mm^3
Laser and Optics	
Laser	Coherent deep UV laser 248 nm LIFT System: LEAP 300K
Optical System	Mask Imaging system for high homogeneity, stability and flexibility
Field Size	LIFT System: 28x1 mm
Energy Density	Up to 1200 mJ/cm^2 for direct transfer from Epi Wafer
Substrates	
Donor	
Material	Quartz or sapphire wafer of temp. carrier
Dimensions	4” to 8” round of square (customization possible)
microLEDs	Size down to 5 x 5 μm^2, street width down to 5 µm (CoW and CoC)
Receiver	
Material	Technical glass, backplane, temp. carrier
Dimensions	Max. 400 x 600 mm^2 (GEN 2.5 substrates)
Stage Systems	
Donor Stage	Options - Triple donor stage for RGB generation in one step - Single donor stage with bow compensation
Receiver Stage	Double receiver stage for parallel processing and loading/unloading/alignment
Diagnostic Systems	
Donor Diagnostics	Fiducial and alignment camera
Receiver Diagnostics	Fiducial and alignment camera Optional: Full sample scanning camera for anomaly detection
Beam Diagnostics	Power meter and beam profiler
Additional Diagnostics	On axis gap measurement system Through the lens camera
Housing	
Laser Protection Class	CLASS IV LASER RADIATION PRODUCT PER EN/IEC 60825-1: 2014
Temperature Control	Temperature stabilization ±0.3 K
Control of Particle Contamination	ISO class 5 in process chamber Optional: Advanced air cleaning system for “ISO 1 mini environment” in the process area
SW and Automatization	
SW Features	Path planning and process simulation Digital twin Fab integration according to customers infrastructure
Automatization	Fully automated process flow EFEM integration according to customer needs

Additional Information









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