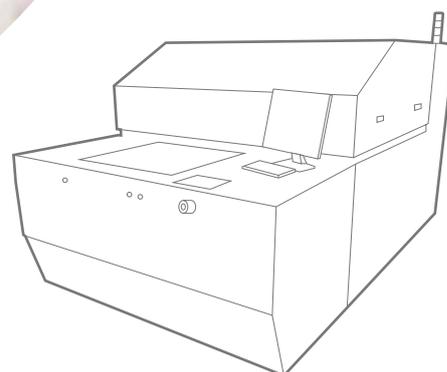


Nuvogo™ 800

PCB Production Solutions



Nuvogo™ 800

The New Way of Imaging



Nuvogo™ 800 is a leading Direct Imaging (DI) solution for mass production digital imaging of fine-line HDI, Flex, Rigid-Flex and MLB applications. This cutting-edge system is powered by the new MultiWave Laser Technology™, which simultaneously generates a multi-wavelength laser beam, offering maximum robustness on a vast range of resist types. Based on Orbotech's field-proven Large Scan Optics (LSO) Technology™, the system is designed for unprecedented throughput of up to 7,000 panels per day, helping to decrease overall cost of ownership while maintaining optimal quality at high speeds.

Benefits

Leading Mass Production Digital Imaging

- Up to 7,000 panels / day using automated in-line solution (300 panels per hour, per line)
- Fully-integrated automation for seamless production
- Fast and easy setup; operator friendly
- Clean, handling-free environment
- Dual table transport mechanism for optimal imaging time

MultiWave Laser Technology™ for Maximum Resist Robustness

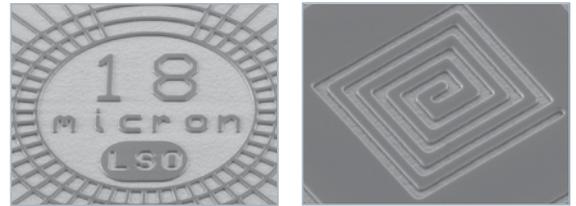
- Compatible with any resist for maximum flexibility; supports optimal factory utilization
- Unmatched uniformity of line-structure quality

Highest Imaging Quality with LSO Technology™

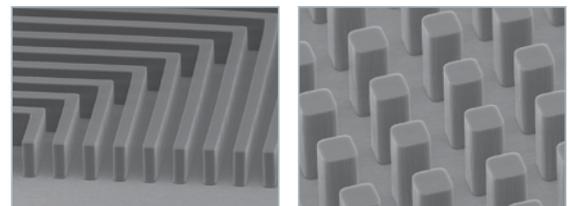
- Resolution of 18µm lines and spaces for the most advanced HDI production
- High depth-of-focus up to ±300µm
- Advanced scaling modes for optimal registration
- Superior registration accuracy down to ±10µm

Lower Total Cost of Ownership (TCO)

- Up to 40% lower service cost per print
- Increased overall efficiency for significant long-term savings
- Suitable for a wide variety of resist types, offering the option to use lower-cost materials



Fine lines and spaces of 18µm for the most advanced applications



Double lamination resist achieved with MultiWave Laser Technology™

Leading Mass Production Digital Imaging

Nuvogo™ 800's cutting-edge digital imaging solution sets a new standard in DI for mass production of high-end electronic devices. Equipped with the industry's most advanced optics and electronics using the MultiWave Laser Technology™, Nuvogo™ 800 is designed to achieve fine-line structures at unmatched speeds.

Nuvogo™ 800 raises the bar by delivering high throughput of up to 300 panels/hour per in-line solution (automated set of two systems). Orbotech's proven dual table transport mechanism allows the system to achieve maximum use of system time for panel imaging. Smooth job changes are facilitated by the system's fast setup capabilities and automatic acquisition of targets. Nuvogo™ 800 operates in a clean, hands-free environment, ensuring no handling damage.

MultiWave Laser Technology™ for Maximum Resist Robustness

Powered by MultiWave Laser Technology™, Nuvogo™ 800 offers maximal flexibility by matching any resist to fit all practices. Adaptable multi-wavelength laser offers unrivaled power and precision for superior uniformity in line-structure quality. Nuvogo™ 800 works in sync with Orbotech's field-proven LSO Technology™ to achieve an enhanced depth-of-focus for superior results on panel topography changes (thin layers, Flex and Rigid-Flex). Designed for optimal production flexibility through maximum resist robustness, Nuvogo™ 800 supports optimal capacity utilization helping to reduce overall operational costs and ensure a faster return on investment.

Highest Imaging Quality with LSO Technology™

Registration Accuracy

Featuring registration accuracy down to $\pm 10\mu\text{m}$, annular rings with microvias can be stacked with greater precision

Innovative Scaling Modes

- Wise Scaling - best scaling mode for mass production, achieving highest panel unification in the batch
- Auto Scaling / Fixed Scaling / Group Scaling
- Partial Scaling - sub-area registration for thin core layers

Depth-of-Focus (D.o.F.)

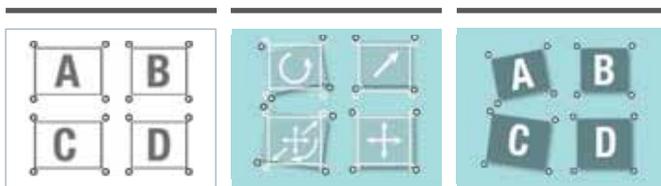
- D.o.F up to $\pm 300\mu\text{m}$ for overcoming the most challenging surface topography changes and/or any distortion or abnormalities with the most advanced image quality
- Single scan for Rigid-Flex allows uniform imaging of the entire panel

Resolution and Line Uniformity

Best line uniformity (down to $18\mu\text{m}$) achieved using LSO Technology™ and a powerful light source

Ease-of-Use

- Operator-friendly, intuitive graphical user interface
- Seamless connectivity to CAM ensures fast and easy set-up
- Recognizes a wide array of different target types to meet any production demands



CAM Data

Panel

Imaging

Traceability

Enables panel tracking by marking: serial number stamp; sub-panel and PCB; date and time stamp; scaling stamp and machine ID by alphanumeric stamping or 1-D barcode / 2-D barcode (Data Matrix Code).

Lower Total Cost of Ownership (TCO)

Nuvogo™ 800 ensures greatly reduced total cost of ownership, while still being able to meet the industry's increasing demands for high-end mass production. With up to 40% less service cost per print, the system offers manufacturers a significantly lower TCO to quickly achieve maximum ROI. Setting a new industry standard, the system provides efficient power consumption while still providing a powerful light source and the most sophisticated optical and electronic systems. As the system is suitable for a wide variety of resist types, manufacturers are afforded the flexibility to choose lower-cost resist types whenever possible in order to further reduce total operating costs.

Specifications

Throughput [prints/h] Max. @18mJ/cm ² @ Imaging Size 24"x18"	300	
Min. Feature Size*	18µm	
Edge Roughness 3s**	±2.0µm	
Imaging Energy Range**	10 - 2,200	
Address Resolution	2.0µm	
Registration Accuracy FtG**	±10µm	
Side-to-Side Registration FtB**	20µm	
Max. Substrate Size	635mm x 660mm	
Max. Exposure Area	609.6mm x 660mm	
Substrate Thickness***	0.025mm - 8mm	
Depth-of-Focus	24µm feature size*	±300µm
	18µm feature size*	±200µm
Applications	<ul style="list-style-type: none"> ○ Inner layers and outer layers ○ Sequential build-up layers ○ Flex and Rigid-Flex PCBs ○ MLB (Multi-layer Boards) ○ Solder Mask 	
System Options	<ul style="list-style-type: none"> ○ Hole-free inner layer registration ○ Stamping (serialization, scale factor, date / time) ○ 2D barcode stamp ○ Wise Scaling ○ Partial Scaling ○ Group Scaling and stamping ○ Additional vacuum customization plate ○ Automation options: <ul style="list-style-type: none"> · DLU - DI Loading Unit · Flipper · Loader & unloader 	

* Depends on resolution and photoresist properties

** All values are 3σ, full format

*** Including DFR or solder resist thickness