# Orbotech Neos™ 800

## Solder Mask Inkjet Printer

## Outstanding Performance with Inkjet Solder Mask

Orbotech Neos 800 is an innovative additive printing (AP) solution for solder mask (SM) layer printing. Powered by KLA's groundbreaking Structural Printing™ technology and field-proven DotStream Pro™ technology, the eco-friendly Orbotech Neos 800 simplifies SM printing and cuts time to market drastically. Based on an innovative intelligent platform Orbotech Neos 800 inkjet solution ensures consistent quality and reliability of the SM layer, while enabling a decreased total cost of ownership (TCO).

## Benefits

### Short, Simple Production Process

- Streamlined printing process
- Fast time to market
- Optimized resources using 100% additive printing solution

### Consistent High Quality and Reliability

- Accurate printing for SM dams and programmable thickness
- Superior registration accuracy with partial scaling support
- Unparalleled depth-of-focus (DOF) for precise printing on challenging surface topographies

### Eco-friendly Solution

- Short, resource-saving process (less labor, power consumption, consumables and floor space)
- Enhanced utilization of ink (closed-loop, no waste)
- Removes the need for waste treatment processes

### Lower Total Cost of Ownership (TCO)

- Significantly lower operational costs
- Optimized printer head for longer lifetime
- Intelligent self-maintenance solution

## Introducing Structural Printing Technology

KLA's Structural Printing technology is revolutionizing solder mask layer printing. Comprised of specialized algorithms, the innovative technology brings digital inkjet technology to the next level to enable 3D-like quality printing, including SM dams and selective/programmable SM thickness control. Featuring automatic calibration processes and consistent drop volume control, Structural Printing technology optimizes feature sharpness to ensure high quality and accuracy of the solder mask layer.

## Technologies

**DotStream Pro™** Technology
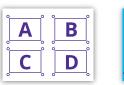
**Structural Printing™** Technology

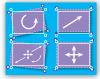## Featuring Field-Proven DotStream Pro Technology

KLA's DotStream Pro technology delivers consistent top print quality at high throughput. Powering KLA's leading installed base of inkjet solutions, the technology features customized long life print heads for high performance, multiple LED-based UV curing for perfect, on-the-fly, ink drop pinning and patented mechanisms for self-maintenance. DotStream Pro technology ensures cost-effective, high-quality industrial inkjet printing for the most advanced designs.

## Leveraging an Intelligent Platform

Bringing together KLA's field-proven inkjet technologies and groundbreaking SM printing technology, Orbotech Neos 800 enables high density designs and advanced PCB printing. Powered by a new intelligent platform, the printer allows for tight registration with a digital programmable SM layer on each panel as well as fine dams with no undercut and mask-in-holes. Simplifying and accelerating the process by printing thin and thick SM, Orbotech Neos 800 ensures 2D and 3D-like quality and reliability.
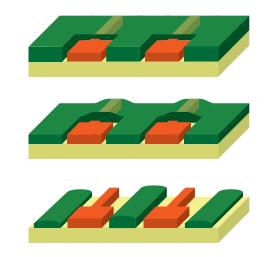
**Innovative Scaling Modes**

| | | |
|---|---|---|
| A B C D | (rotate) (move) (skew) (scale) | A B C D |
| CAM data | Panel | Imaging |

**Selective and Programmable Solder Mask Thickness**

## Simpler, Faster, More Efficient Process

**Solder Mask - Conventional Process**

Cleaning > Coating > Tack-Drying > Exposure > Developing > Final Cure

**Solder Mask - Inkjet Process with Orbotech Neos 800**

Cleaning > [Orbotech Neos 800] > Final Cure

- Shorter, faster, simpler
- Consistent high quality
- Eco-friendly
- Low operational costs

## Specifications

| | |
|---|---|
| Minimum Dam Size | 75µm (3mil)[1] |
| Minimum Clearance | 35µm (1.4mil)[2] |
| Minimum SRO | 200µm (8mil)[1] |
| Registration Accuracy (FtG)[3] | ±25µm (±1mil) |
| Alignment | On-the-fly with multiple targets |
| Scaling | Auto-Scale, Partial Scaling |
| Edge Roughness/LW Uniformity | ±15%[1] |
| Depth-of-Focus - Warpage | 1.5mm (60mil)[4] |
| Print Mode | Side A-A or Side A-B |
| Minimum-Maximum Panel Thickness | 0.1-8.0mm (4-315mil)[5] |
| Maximum Panel Size and Image | 813mm x 660 mm (32" x 26") |
| Ink | Multiple inks from leading suppliers[6] |
| Dimensions: W x D x H | 1950mm x 2490mm x 2076mm (76.8" x 98.0" x 81.7")[7] |
| Weight | 2850Kg (6283lbs) |

1 Requires optimal surface conditions (i.e. use specific surface pre-treatment if necessary).
2 On up to 35um (1.4mil -1oz) copper thickness, flat panel (warpage <500µm) and optimal registration. For higher copper thickness, the minimum clearance might vary.
3 Feature to Grid, excluding alignment target reading error and panel distortion. All values are 3σ.
4 Max allowed panel warpage 1.5mm.
5 Only for rigid panels. For thin panels it might be necessary to disable clamping and use vacuum only.
6 Please consult with Orbotech for an updated list of Orbotech-approved solder mask inks that can be used with Orbotech Neos 800.
7 Height including status light tower.

The above specifications are subject to change without notification.
Orbotech Neos 800 is a class-1 laser product. Laser specifications: IEC 60825-1 compliant.

**KLA SUPPORT**
Maintaining system productivity is an integral part of KLA's yield optimization solution. Efforts in this area include system maintenance, global supply chain management, cost reduction and obsolescence mitigation, system relocation, performance and productivity enhancements, and certified tool resale.