

# Orbotech PerFix™ 200S/200S XL

Automated Optical Shaping (AOS)

## Orbotech PerFix 200S/200S XL

### Creating New Connections

Orbotech PerFix 200S/200S XL, KLA's latest innovation in automated optical shaping (AOS), perfectly shapes shorts and any excess copper defects with high precision. It enables top quality shaping of most advanced PCB designs, including any-layer, HDI and complex multi-layer boards. Now more than ever, Orbotech PerFix 200S/200S XL is moving the PCB industry closer to achieving zero scrap production.



## Benefits

### Maximum Scrap Saving - One-Stop Solution

- Perfect shaping of shorts and excess copper defects
- Resolution down to 30µm line and space
- Saving of PCBs that would otherwise be scrapped

### Superior Quality with Closed Loop Shaping (CLS)™ technology

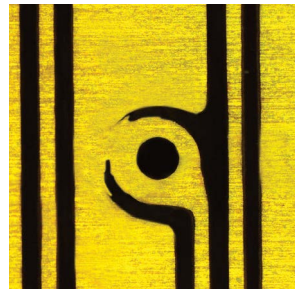
- Iterative and controlled process
- Automatic comparison to CAM data
- Minimum penetration to the laminate

### Robust Performance

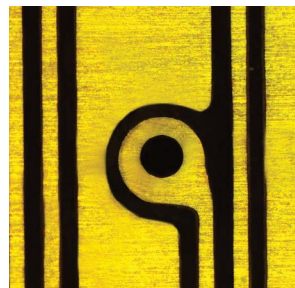
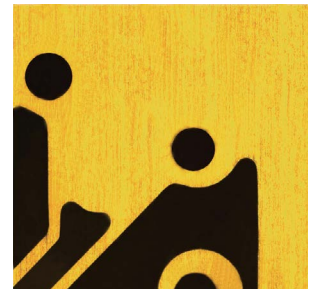
- Utilization of KLA's patented, high performance laser technologies
- Shaping of more than 60 typical fine line defects per hour
- Fast and easy setup enables switching jobs easily

### Connectivity

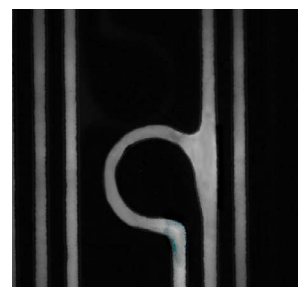
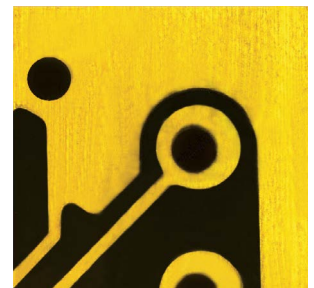
- Automatic connectivity to KLA's AOI and verification systems only
- Connectivity with third party solutions



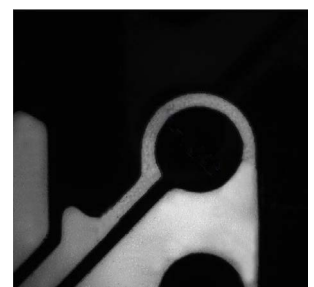
Before shaping



After shaping - white light image



After shaping - UV light image



### Maximum Scrap Saving

Saving PCBs that otherwise would have to be scrapped, Orbotech PerFix 200S/200S XL significantly increases PCB production yield on even the most complex any-layer, HDI and advanced MLB jobs. Utilizing state-of-the-art technologies, the system shapes any type of short or excess copper defect, including those on multiple lines, SMT areas, corners and pads, without damaging the shaped area.

Thoroughly tested to meet the highest industry standards, Orbotech PerFix 200S/200S XL performs perfect shapings as if there never was a defect in the first place. The system's results meet strict manufacturing specifications such as electrical characteristics, durability to time and stress, and visual requirements.

### Superior Quality with CLS technology

Orbotech PerFix 200S/200S XL's CLS technology is the key to outstanding accuracy and speed. KLA's proven image acquisition captures precise images of the defect area. A set of specialized image analysis algorithms compares the images to the CAM data in real time, automatically finds the copper to be removed, and then guides the system's laser as it accurately ablates excess copper.

The full, 3-step cycle of image acquisition, image analysis and laser ablation is repeated until the shaping is perfect, with no damage to conductors and minimum penetration to the laminate.

### Robust Performance

Orbotech PerFix 200S/200S XL utilizes advanced laser system design, which emits high-frequency pulses combined with patented, ultra-fast moving mirrors for optimal control. An innovative optical mechanism maximizes laser intensity and accuracy to ensure superior laser performance on a variety of materials.

### Connectivity

Orbotech PerFix 200S/200S XL becomes the shaping center for all excess copper defects detected along the HDI and MLB production lines. In mass production mode, defect coordinates are automatically received from KLA AOI or verification stations for maximum speed. Orbotech PerFix 200S/200S XL can receive coordinates from other types of equipment as well.



## Specifications

### Orbotech PerFix 200S

### Orbotech PerFix 200S XL

Technology Range	Down to 1.2mil (30µm) line/space				
Shaped Products	<b>Inner layers:</b> signal, power & ground, mixed, cross shielding, inner with holes, build-up <b>Outer layers:</b> signal, mixed, cross-shielding, build-up				
Material	<b>Laminate type:</b> FR4, FR5, Tetra function* <b>Minimum laminate thickness:</b> 40 microns <b>Copper thickness:</b> 0-100 microns				
Shaped Defects	<b>Any excess copper including:</b> shorts, protrusions, copper splashes, minimum space violations, excess features, wrong-larger size of features, under-etched features, under solder mask defects				
Panel Dimensions	<b>Maximum panel size/shaped area:</b> 30" x 24" (762mm x 610mm) <b>Panel thickness:</b> 50-10,000µm	<b>Maximum panel size/shaped area:</b> 30" x 36.5" (762mm x 927mm) <b>Panel thickness:</b> 50-10,000µm			
Throughput**	Copper Thickness	Defect Size (µm)	Shaping (shorts) per Hour		
			30µm	65x200	80
				300x300	55
	40µm	600x600	25		
		65x200	300x300	55	
			600x600	35	
Image Processing Methods	Full reference comparison - SIP™ technology - Adaptable sensitivity for accurate results				
	Ablation Method				
Setup Data Sources	KLA's CLS technology				
Connectivity	CAM inspection and classification criteria from KLA AOI and verification stations				
Panel Registration Method	Automatic connectivity to KLA AOI and verification systems				
Options	Pin less registration - panel edge alignment				
Verification Stations Supported	Remote image verification (RIV)				
Dimensions (W x D x H)	Orbotech VeriSmart™, Orbotech VeriSmart™-A, Orbotech VeriFine™, Orbotech VeriFine™-A, Orbotech VeriWide™, Orbotech VeriWide™-A, Orbotech Ultra VeriFine™-A				
Weight	161cm x 184cm x 186cm	161cm x 220cm x 186cm			
	800Kg		820Kg		

\* For manual operation mode. For automation mode, maximum panel size is: 30" x 32.5"  
 \*\* Based on a test panel with FR4 laminate

Specifications are subject to change without notice  
 Orbotech PerFix 200S/200S XL system is a class-1 laser product

#### 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.

© 2022 KLA Corporation. All rights reserved worldwide. KLA reserves the right to change the hardware and/or software specifications without notice. Orbotech is a registered trademark of Orbotech Limited, a KLA company. KLA and the KLA logo are registered trademarks of KLA Corporation. All brands or product names may be trademarks of their respective companies.

KLA Corporation  
 One Technology Drive  
 Milpitas, CA 95035  
 www.kla.com

Rev 8.0\_10-17-2022